A Good Place to Grow Old?
An exploration of the role of psychosocial factors in late life depression.

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Submitted in part fulfilment of
the degree of doctorate in Clinical Psychology,
at the University of Edinburgh
2003

ACKNOWLEDGEMENTS

I would like to thank everybody who has contributed to the completion of this thesis and particularly each of the participants who so willingly gave up their time to take part and without whom the research would not have been possible.

I would also like to thank the District Nursing Sisters Liz Casey and Yvonne Bell and their teams from the North Glen Medical Centre, Glenrothes and Auchtermuchty Health Centre for their invaluable help with recruitment to the study. Particular thanks go to Liz Casey whose dedication to her older patients provided the initial impetus for this research.

My thanks go to the Fife Department of Clinical Psychology for their support and the encouragement of certain individuals merits particular mention. Kate McGarva has provided constant and patient support throughout. Margaret Carey has listened to and discussed every possible angle on this thesis and has given me real practical help. I particularly thank my University supervisor, Ken Laidlaw in Edinburgh and my clinical supervisor, Sheena Bailey in Fife for the time and interest they have given to my thesis.

Special thanks go to my fellow trainees and particularly Lindsey Murray for being there and understanding. Thanks too to my parents for their encouragement and their fine example of successful ageing. Finally my heartfelt thanks to my husband, John and my sons, Thomas and Philip, for their patience and support throughout the past three years.

Declaration

This thesis has been composed by myself and the work contained herein is my own.

*Signed*_ *Date* 30.10.03

ABSTRACT

Depression in the oldest-old, the fastest growing sector of the population, presents serious challenges to healthy and successful ageing. The over 75's health check process identified heightened rates of depression in a new town population. The potentially serious implications of such findings provided the impetus for the current study. Psychological and social theories of ageing together with a wide-ranging empirical and epidemiological literature highlight the positive mental health value in late-life of active involvement, social support and emotional support in particular. It was hypothesised that the perceived adequacy of socioemotional support and the esteem-enhancing qualities of social integration and sense of belonging may reduce vulnerability to depression in late life. A limited amount of research has begun to address the possible connections between sense of belonging and depression in younger adults. The current study aimed to examine the relationship between social integration, sense of belonging and depression in older adults.

Sixty-three participants were recruited to the study through the over 75's health check process, twenty-eight identified as "depressed" and thirty-five as "non-depressed". Each participant completed a semi-structured interview including questions relating to active engagement, sense of belonging and loneliness together with a set of questionnaires relating particularly to life events and social support. Life events and medical problems were regarded as examples of stressors and the role of potential protective factors was examined in relation to these.

The proposed association between social support and depression was confirmed though the role of practical support was emphasised in this oldest old cohort. No evidence was found of a stress-buffering role of social support. The mental health value of social integration was generally confirmed by the study findings. As an initial examination of sense of belonging in an oldest old population the current study highlights its potential protective value in terms of late-life depression. The need for further examination of this psychological construct is indicated together with the development of a reliable and valid scale for its measurement.

All results are discussed with reference to relevant theory and previous research findings and in terms of their clinical implications.

CONTENTS

List of Tables

List of Figures

"Interaction with the environment is as critical to thriving as a human being at the end of life as it is at the beginning"
Bowlby, 1980

"Our subjective experience of life determines our sense of health and wellbeing... we need a sense of belonging and connectedness to our community"
from
Improving Health and Wellbeing in Fife,
Annual Report of the Director of Public Health, 2001-2002
NHS Fife, 2003

1. INTRODUCTION

As the world's population ages national and international bodies promote policies of active and successful ageing embracing the concept of active involvement and the promotion of strengths and maintaining capabilities. Late-life depression is one specific challenge to these aims. It heightens the risk of both disability and mortality. Rates of suicide, frequently associated with depression, increase dramatically with age. Late-life depression could be seen as the antithesis of the positive and life-enhancing concepts of active and successful ageing. It may to some extent represent an inadequate adaptation to ageing and its associated stressors.

The following review considers some of the psychological (and psychosocial) theories of ageing and relates these to a broader gerontological literature which identifies relevant risk factors and protective factors for late-life depression. Chronic ill-health and particular types of transition are highlighted as pertinent stressors in late-life. Within the

context of such stress, certain factors are clearly identified as protective. Of these, social integration and sense of community belonging are considered both within a lifespan developmental framework and in terms of their facilitation of active engagement with social support and its well-researched protective qualities in times of stress.

The identification of heightened rates of depression in a "new" town population of older adults provided the initial impetus for the current study. In view of relevant theoretical and empirical evidence it was hypothesised that this cohort, as an entirely incomer population, may have been lacking certain protective factors relating to community stability and social support which would be important to all older adults regardless of their community of residence. The current study aims to explore the association of the psychological factors of sense of belonging and socioemotional support with depression in people over 75, alongside certain social factors related to social integration and social support network.

1.1 Demographic Changes

The world's population is ageing, with Europe having the highest proportion of population aged 65 and over. By 2030, nearly 12 percent of all Europeans are projected to be aged 75 and over and 7 percent to be aged 80 and above (Kinsella and Velkoff, 2001). Persistent low fertility in industrialised nations over the last three decades has led to a decline in the size of successive birth cohorts and a corresponding increase in the proportion of older adults to younger ones. In Scotland too, the numbers of older people

are increasing, the birth-rate is falling and there is net migration resulting in a fall in population numbers over the last 5 years (Wood & Bain, 2001). In many countries the "oldest-old" (people aged 80 and over) are now the fastest growing portion of the total population. United Nations estimates state that the number of people over 90 will show an eight-fold increase over the next fifty years and those over 100 will show an eighteen-fold increase (UN, 2002). The number of people in Scotland aged 75 or over is projected to increase from a third of a million in 2000 to just over half a million in 2031, and the number of people aged 85 years or over is projected to rise from approximately 84,000 to 151,000 over the same time period (Wood and Bain, 2001). With a projected fall in the total population of Scotland, the proportion of older adults will rise. Consequently, Scotland is 'growing older' and many healthcare professionals will increasingly come into contact with older people.

There is a paucity of literature relating to migration patterns of older people worldwide (Kinsella and Velkoff, 2001). A "retirement effect"- an increase in mobility rates at ages 60 – 64, has been noted, both in the United States and the United Kingdom (UK) and increased movement of older people may be expected in the future (Long, 1992). It is clear that although short-distance, intracommunity, assistance-motivated moves are currently the most common, long-distance amenity-motivated relocation may become more prevalent as levels of education and retirement income increase (Kinsella and Velkoff, 2001). Although some authors have described such moves as "stressful for older people" (Thomas, 2003), the impact of such relocation on the mental health of

older adults has received little empirical attention to date. It is hoped that studies such as the current one, which explore the relationship between social integration and psychological distress in older people, will begin to inform this area.

1.1.1 National and International Policy Statements

There is a clear need to develop policy in response to and in anticipation of demographic change. Recent Scottish policy documents, such as 'Adding Life to Years' (CMO, 2002) recognise the need to meet the healthcare needs of older people. Internationally, the World Health Organisation (WHO) sees increase in longevity as a major challenge and success for societies and currently an agenda for active ageing is being sponsored (WHO, 2002). Active ageing aims to ensure that older adults become and remain active participants in an age-integrated society, the focus being on enabling individuals to take an active role in promoting and maintaining their own physical and mental health. The policy framework particularly emphasises the need to keep risk factors low and protective factors high to enable people to enjoy improved length and quality of life. A recent briefing paper for the Scottish Executive "Mental Health Improvement: What works?" (NAG, 2002) stresses the particular significance of protective factors at times of change and transition. The need to strengthen such factors is emphasised at a local level for those who are vulnerable and notably for those who are socially excluded. There is a clear potential in late-life for increased vulnerability as the challenges of age-related transitions are faced and the loss of peers and prevailing ageist attitudes heighten the risk for social exclusion.

1.1.2 Successful Ageing and the importance of Protective Factors – A lifespan framework

The promotion of protective factors has long been acknowledged as fundamental to a "health" service for all age groups. In 1948, the World Health Organisation defined health not as the absence of illness but as the presence of well-being – physical, mental, and social (WHO, 1952). Vaillant and Mukamal (2001) point out that in future, geriatric psychiatry "must learn to pay as much attention to health as to disease". The current approach to ageing advocated by the Scottish Executive, the UK government and conveyed as a major theme of the 1999 United Nations International Year of Older Persons, is that of "successful ageing". Successful ageing involves the maintenance of mental, physical and social health. It is closely linked with quality of life and "advocates an emphasis on strengths and maintaining capabilities" (Gething, Gridley, Browning et al., 2003). It is a successful adaptation to aging, a dynamic process in which "the aging person confronts the stressors and challenges of aging not as a passive victim but as an actor drawing on resources that may themselves undergo both positive and negative change" (Pearlin and Skaff, 1995).

Such an "active" view of ageing sharply contrasts with the widely-portrayed view of old age as a life stage characterised by "disengagement" (Cumming and Henry, 1961; Cumming, 1975). Reductions in social network size and in the number of roles occupied are presented by disengagement theorists as inevitable and desirable features of "healthy" ageing. Scant attention is given to societal and institutional norms which impose such

changes, nor to the exceptions in the original study who remained socially actively engaged (Sugarman, 2001); the quality and meaning of relationships lost and retained is disregarded. In contrast, early activity theorists recommended somewhat unrealistically, denial of old age by the ageing as an appropriate and healthy strategy (Havighurst, 1963).

Although early activity theorists first coined the term "successful ageing", its current usage represents a more complex and reasoned perspective on resilience – the adoption of individual strategies for optimal ageing within the context of maintaining a continuing view of self and identity (Atchley, 1989). The model of successful ageing, presented by Baltes and Baltes (1980, 1990; Baltes, 1993), is primarily developmental, describing a process of adaptation (termed "selective optimisation with compensation), whereby individuals first select the most personally meaningful areas to focus their energies, optimising the use of those resources available to them, whilst compensating, as far as possible, for those that have been lost or are reduced. As such, this model represents an adaptive coping style where reduction and/or loss of capacity (internal or external) are compensated for by the strategies of optimising and selection.

Rowe and Kahn's (1998) definition of "successful ageing" incorporates three elements: i) low risk of disease and disability, ii) high levels of mental and physical functioning, and iii) an active engagement with life. Clearly reductions in the first two components will present challenges to the third. However, Baltes' model of adaptive coping provides room for optimism here. The term "active engagement" implies a sense of involvement

and the retention of a valued role. An associated sense of control may allow people to cope actively and mobilise social support in their own behalf (Brandstadter and Baltes-Gotz, 1990). An increasing importance with age of reciprocity in social relations (rather than dependency) together with a sense of being a valued part of a community (rather than just living in one) are discussed in detail below as key factors relating to vulnerability to late-life depression (see 1.6).

Recognising that many of the stressors facing older people emanate from social and economic circumstances, Pearlin and Skaff (1995) concluded that "the understanding of successful aging is inseparable from the understanding of successful societies". The World Health Organisation's promotion of the concept of "active ageing" (WHO, 2002) reflects a similar standpoint, encouraging the active participation of older people in society. In this spirit, and that of "Adding Life to Years" (CMO, 2002), the current study highlights the potential available in a Primary Care context to identify psychosocial factors which differentiate those who are ageing successfully, the "happy-well" (Vaillant and Mukamal, 2001) from those who are not, together with the further potential for promoting protective factors over which individuals and/or communities can have some control.

Although some notable longitudinal studies have taken place in an attempt to identify factors influencing healthy ageing (eg. Schaie, 1983; Busse and Maddox, 1988), by starting in late-life they failed to include those who died before the age of 60 or 70. Such

studies therefore precluded the possibility of examining evidence about predictor variables or the clear identification of risk and protective factors from a lifespan perspective. Exceptionally, the Study of Adult Development (Vaillant and Mukamal, 2001) did follow two socially diverse cohorts from adolescence through till late-life in an attempt to differentiate "happy-well" older adults from "sad-sick" ones. Although the narrowness of the cohorts limits generalization, the study highlighted some important issues. Of the potential predictors of successful ageing investigated, all except social class were significant, but many were affected by others. Causal emphasis and causal direction remain uncertain as a result, even with such an extensive longitudinal design. Interestingly, predictor variables were found to change with time, emphasizing the continued importance of studies with specific age groups and cohorts rather than assuming similar factors will be of relevance across the lifespan and across generations. In support of the Baltes model of successful ageing, the seven protective factors identified are under some degree of personal control – weight, exercise, education, abuse of cigarettes and alcohol, personal relationships, and coping styles.

Clearly, the concept of successful ageing is a holistic one, relating to physical, mental and social well-being, emphasizing the individual's capacity to adapt and actively engage. The recognition of the importance of continued active engagement with others and the maintenance of a valued role to a healthy ageing process reflects a wide psychological and sociological literature emphasizing the crucial nature of social relationships to mental health across the lifespan (eg. Erikson, 1963; Bowlby, 1969; Bronfenbrenner, 1986;

Atchley, 1993; Lang and Carstensen, 1998). Well-researched psychological protective factors for mental wellbeing include feeling respected, valued and supported (Williams and Pollock, 2001). The need to belong reflected in such factors has been proposed in the literature as a fundamental human motivation (Maslow, 1954; Baumeister and Leary, 1995). Active engagement with others, a key component of successful ageing, clearly aims to promote a sense of belonging. The active ageing agenda emphasises the role of society to enable such active engagement. Of particular interest and importance to the current study is the possibility that certain communities may facilitate such active engagement and foster a sense of belonging in older adults. If depression is taken as an example of unsuccessful ageing, then whether sense of belonging serves a protective function in terms of late-life depression is of crucial importance and is central to the current research study.

The potential for late-life depression to impact on an older adult's ability to adopt successful strategies for ageing has also been highlighted (Laidlaw, 2003). As such, the importance of detection and appropriate assessment and treatment cannot be overemphasised, together with the need for research to identify risk factors and protective factors to enable adults to actively promote good mental health in late life.

1.2 Late-life depression

Depression and anxiety are common conditions in old age, both being more common than the dementias (Blazer, 2002; Watts, Bhutani, Stout, et al, 2002). Late-life depression has been associated with a decline in wellbeing and daily functioning (Ormel, Kempen, Deeg, et al., 1998) and with higher risks of functional impairment, mortality and service use (Beekman, Copeland, and Prince, 1999). It is a "powerful destroyer of the quality of life itself" (Copeland, 1999) and, as such, imposes a major social and economic burden.

1.2.1 Prevalence

The prevalence levels reported for late-life depression in community-dwelling older adult populations vary considerably. In prospective studies reviewed by Schoevers, Beekman, Deeg, et al. (2000), incident cases vary from 26 per cent over 1 year (Beekman, Deeg, Smit et al., 1995) to 7.1 per cent after 3 years (Green, Copeland, Dewey et al., 1992). Other longitudinal studies have found incidence rates of 11 per cent after 2 years (Kennedy et al., 1990), 10.7 per cent after only 6 months (Phifer and Murrell, 1986) and, in their own study, Schoevers et al (2000) found that 15.9 per cent of their subjects achieved a GMS-AGECAT depressive syndrome diagnosis at 3-year follow-up. Differences in methodology make comparisons between studies problematic. Some studies use measures designed for use with younger adults (eg. Raymond et al., 1980), others use structured interviews linked to diagnostic criteria (eg. Prince, Harwood and Blizard, 1997), whilst still others assess depressive symptoms (eg. Ormel, Kempen and Brilman, 1997). Reported variations in prevalence need, therefore, to be interpreted with

caution as they may not truly reflect actual between-population differences. Even studies of primary care attendees may be unrepresentative, since higher prevalence rates may reflect higher attendance rates in the physically ill (Evans and Katona, 1993). Ebrahim, Hedley, and Sheldon (1984) reported good levels of physical and mental health in older adults who never seek medical help.

In general, epidemiological studies have found lower rates of depressive disorders in older adults than other age groups, whilst studies measuring levels of depressive symptomatology have found these to be elevated in those over 75 (Newmann, 1989). Such findings suggest that the symptoms reported by older people may not fit well with existing diagnostic criteria (Fiske, Kasl-Godley, and Gatz, 1998). Gallo, Anthony, and Muthen (1994), for example, found that older people were less likely to endorse an item comprising dysphoria or anhedonia than younger people with the same level of overall depression. Lower levels of guilt and suicidal ideation have also been reported in older adults (Blazer, Bachar and Hughes, 1987). Several subtypes of depression or symptom constellations are thought to be relevant in later life. Of particular importance is "minor" or "subsyndromal" depression (Blazer, 1994), standardised study criteria for which appear in DSM-IV(APA, 1994). Several authors have used this term more inclusively, incorporating dysthymia and adjustment disorder with depressed mood as well as dysphoria (Beekman et al., 1995). The Medical Outcomes Study (Wells, Stewart, Hays et al., 1989) reported the importance of detecting depressive symptoms in the absence of

a depressive disorder because the associated functional disability was highlighted as exceeding that of most physical illnesses.

Studies of late-life depression have consistently found higher prevalence rates in women than in men (Evans and Katona, 1993). Major studies have reported levels in women 3.5 times the rate for men (Weissman, Bruce, Leaf et al., 1991), although this difference appears to even out in the oldest-old (Wallace and O'Hara, 1992; Forsell, Jorm, von Strauss, and Winblad, 1995). Women's greater life expectancy, combined with the cultural norm that women generally marry men older than themselves, results in larger numbers of older women than men. It has been suggested that healthcare professionals should take particular note of this "feminisation of ageing" (WHO, 1999) as "women tend to report higher levels of depression than men and are more likely to come to the attention of psychiatric services" (Laidlaw, 2003).

1.2.2 Detection, assessment and treatment

Detection and assessment of depression in older adults can be complicated by the fact that i) clinically significant symptoms may not fulfil diagnostic criteria for major depressive disorder (Almeida and Almeida, 1999), ii) subjective experiences of cognitive impairment can present as pseudo-dementia (Montoria and Izal, 1996), and iii) some of the somatic signs, such as reduced sleep, considered diagnostic in younger adults, are common features of the ageing process. The heavy loading of somatic symptoms on most depression scales renders them inapplicable and unreliable in the detection of

depressive symptomatology in the older adult (Sheikh, Yesavage, Brooks et al., 1991). The Geriatric Depression Scale (GDS-30) (Yesavage, Brink, Rose et al., 1983) was designed to be used as a screening tool (not a diagnostic instrument), to detect depressive symptomatology in older adults, deliberately excluding items of a somatic nature. Such exclusion prevents the misattribution of somatic symptoms, possibly caused by illness or medication, to depression (Montoria and Izal, 1996).

Despite available effective treatments, older people do not always receive adequate treatment for mental health problems (Unutzer, Katon, Sullivan and Miranda, 1999). Late life depression is both underdetected and undertreated (Copeland, Davidson, Dewey et al., 1992; Iliffe, Haine, Galliva et al., 1991; Laidlaw, 2001). Though there have been improvements, many GPs still do not recognise and appropriately treat depression and anxiety in older people (Orrell et al, 1995; Rothera et al, 2002). Recently, negative stereotypes of older people and negative attitudes towards ageing have received increased attention, together with the potential contribution such beliefs may have on health professionals' expectations of older people and on older people's own expectations of themselves (Gething et al., 2003; Thomas, 2003). The consequent lowering of expectations can limit older people's own horizons, resulting in a reluctance to seek treatment for conditions that are incorrectly assumed to be inevitable (Gething et al., 2003).

1.2.3 Suicide

Suicide in late-life has been regarded as the "ultimate expression of unsuccessful ageing" (Laidlaw, 2003). Worldwide, the rate of suicide in older adults and particularly in older men living alone is higher than that of any other age group (Kinsella and Velkoff, 2001), with male rates at all ages at least twice that of females (Gulbinat, 1996). Depression and suicide are closely linked across the life span (Fiske et al., 1998). Although depression does not necessarily lead to suicide, amongst older individuals who have committed suicide the most frequent diagnosis has been depression (Pearson and Brown, 2000). Of particular concern is the change in ratio of attempted to completed suicides with age, providing a much more limited "window of opportunity" for intervention (Fiske et al., 1998). In older adults this ratio has been estimated at 4:1, whereas this ratio among all ages is thought to be around 20:1. It has been reported that older suicide completers are likely to have visited their General Practitioner (GP) within the previous month (Conwell, Olsen, Caine, et al., 1991; Evans and Katona, 1993), suggesting that the severity of their depression is either undetected or untreated.

It would seem appropriate to conclude that, considering the serious consequences of late-life depression in terms of quality of life, functional impairment, morbidity and mortality, "efforts to improve recognition and treatment should be focussed on those most at risk and in primary care settings" (Beekman et al., 1999). The current study highlights the potential for Over-75's health checks to improve rates of identification of currently depressed individuals and those at heightened risk of developing depression, stressing the

value both to individual patients and to public health and service development. The identification of factors associated with increasing or reducing risk of depression provides the potential for individual action and an opportunity for services to encourage and support such active participation by older adults in promoting their own mental and physical wellbeing.

1.3 Detection of Late-Life Depression in Primary Care – The Over 75's Health Check

In the 1980's, Government legislation made it compulsory for GP practices to offer annual health checks to all people aged over 75 (DOH, 1989). Amongst the recommendations for inclusion was a limited assessment of mental health status together with broad measurement of physical health status. Health checks currently screen a wide range of older people, many of whom may not be regular health service users. While little is known about the psychological needs of these older people, it is widely recognised that older people's mental health needs are often overlooked (Unutzer et al.,1999). It is also arguable that the psychological health needs of the oldest-old section of the population (85 years plus) will be the most poorly addressed and understood (Baltes and Smith, 2002).

In 1994, the Royal College of General Practitioners (RCGP) recommended the inclusion of the 15-item version of the Geriatric Depression Scale (GDS-15; Sheikh and Yesavage,

1986) in all health checks. However, a recent survey in England and Wales found none of the practices surveyed to be following the RCGP's advice (Arthur, Jagger, Lindesay et al., 1999). A similar survey in Forth Valley Health Board, Scotland, found that of the 37 practices who submitted a copy of their assessment protocol none included a depression score (Wilkieson, Campbell, McWhirter, McIntosh, and McAlpine, 1996). In Fife, however, a number of GP practices *have* been following RCGP guidelines and have incorporated the GDS-15 for several years in all health checks.

A recent audit conducted by one of these practices (in Glenrothes "New Town") has highlighted levels of depression twice that reported in the Medical Research Council (MRC) trial of assessment and management of older people in the community (Osborn, Fletcher, Smeeth et al., 2002). The MRC cluster randomised trial investigated different approaches to multidimensional screening for people aged 75 and over, with randomisation by practice. The 106 participating general practices, recruited from different geographical regions in the United Kingdom (UK), provided a representative sample of the mortality experience and deprivation of practices within the UK. All 14,545 participants completed the GDS-15. A further parallel audit of depression screening in over-75's health checks was conducted by a rural Fife practice (Auchtermuchty). Levels of depressive symptomatology were found to be very similar to those identified in the MRC study and significantly lower than the Glenrothes sample (Appendix 1).

The current research explores factors which may help to account for the heightened levels of depression identified in Glenrothes. It is responding to the understandable concern of Glenrothes Local Healthcare Cooperative (LHCC) over the unexpectedly high levels of depressive symptomatology identified by their over 75's health checks. As such, it is an example of an older adults Clinical Psychology service working jointly with Primary Care colleagues. The Primary Care focus is entirely in keeping with the core of health service policy nationally (CMO, 2002) and the latest British Psychological Society's report on Clinical Psychology services for older people in Primary Care (BPS, 2002).

The primary care setting provides an opportunity both for detection and intervention in depression in later life (Evans and Katona, 1993). However, improving levels of identification will not necessarily result in improved outcome for cases identified. This would require case-finding to be coupled with "suitable mechanisms for follow-up and referral for older people with depression to receive and benefit from appropriate treatment" (Arthur et al., 1999). In the planning stage of the current study an open referral system to clinical psychology was established for those conducting the over 75's health checks (usually district nurses). Although reported rates of late-life depression in primary care vary widely, considerable concern over its undertreatment resulted from a UK study which found serious depressive symptomatology in 31 per cent of surgery attenders aged 65 and over (MacDonald, 1986). Although most cases were detected by GPs, only 7 per cent were offered more specialised assessment. It is crucial that depression in older adults be not only detected, but appropriately assessed and treated.

1.4 Common comorbid psychological distress

1.4.1 Anxiety

Although anxiety is a common disorder affecting older adults, with a prevalence rate estimated at about ten per cent (Beekman, Bremner, Deeg et al., 1998), anxiety disorders in later life have received much less research attention than depression. The prevalence of anxiety in Epidemiological Catchment Area studies was found to be lower among people over sixty-five, but anxiety was still the most common problem for older people, with rates being twice as high among women as men at every age. The most recent report of annual referral statistics for the Fife Clinical Psychology older adults service reflects international studies, with anxiety referrals exceeding all other types of referral other than suspected cognitive impairment.

Both depression and anxiety may present with similar symptoms and differentiation between the two can prove difficult (Krasucki, Howard and Mann, 1998). The increasing complexity in later life of physical comorbidity exists for both depression and anxiety, presenting similar clinical challenges (Stanley and Beck, 2001). The Short Anxiety Screening Test (SAST) (Sinoff, Ore, Zlotogorosky, and Tamir, 1999), used in the current study, was developed specifically to screen for the presence of anxiety in adults seventy years old and older. The authors developed it to standardise the detection of anxiety disorder in older people, even in the presence of depression.

Anxiety is commonly found to be comorbid with depressive disorders (Blazer, 1997; Pearson, 1998; Schaub and Linden, 2000). Where depression and anxiety coexist, greater weight has generally been given to depression (Bramley, Easton, Morley, and Snaith, 1988). However, more recently, this approach has been questioned, as researchers have recognised that failure to treat anxiety has resulted, on occasion, in failure of initial therapy for depression (Sinoff et al., 1999). In their three-year prospective study, Schoevers et al. (2000) found both baseline and new anxiety syndromes predicted depression incidence. Although there is little information on age of onset of anxiety symptoms, or its life course, Blazer, Highes, George et al (1991) suggested that anxiety usually develops earlier in life, with a continuing vulnerability in later life.

Despite the evidence for anxiety as a common late-life disorder, there has never been any recommendation to screen for anxiety in the over 75's. Although the major focus of the current study is to examine the correlates of depression identified through the health check process, concern over possible comorbidity of depression and anxiety was expressed to the researcher by clinicians conducting the health checks in the field (district nurses and general practitioners). As a result of the concern expressed and the literature suggesting the detrimental impact on treatment of late-life depression of undetected and untreated anxiety, it was determined to measure anxiety levels in all study participants.

1.4.2 Loneliness

Loneliness in late-life has been linked with depression, anxiety, fatigue, heavy alcohol consumption and decline in immuno-globulin levels (Andersson and Stevens, 1993). It has been described as posing "a major challenge to health, social, and voluntary services" (Bathurst and Ward, 2001). Peplau and Perlman (1982) referred to it as the psychological state reflecting discrepancies between a person's social/emotional needs and their social ability. Those who describe themselves as lonely may have as many social contacts as those who do not, but they are "less than satisfied with their current social relationships" (Gibson, 1999). Studies within the social support literature which focus on subjective appraisal of social support adequacy in relation to psychological distress in older people are of particular pertinence here and are discussed below (1.6.1).

Although estimates vary as to how large a problem loneliness presents in later life, Forbes (1996) suggested that about 10 per cent of older people would describe themselves as "feeling lonely". The British Gas report on attitudes to ageing (Midwinter, 1991) reported that 90 per cent of their respondents (including 82 per cent of people over 55) believed loneliness to be a problem associated with old age. However, only 22 per cent of their respondents aged 55 years and above reported that it was a problem for them personally. Possible under-reporting has been hypothesized, resulting from stigma – those who feel lonely may be reluctant to admit it for fear of being judged as having poor social skills or personality problems (Bathurst and Ward, 2001).

Green et al (1992) identified cases of depression in the third year of the Liverpool continuing health study and returned to data from their initial interview three years earlier to isolate possible risk factors. Of all the potential factors investigated, only three attained the level of predictive significance after univariate analysis: feelings of loneliness, smoking, and a generally poor satisfaction with life. Feelings of loneliness may reflect an underlying personality trait leaving an individual prone to developing depression, or they may represent a premorbid symptom (Green et al., 1992). In cognitive terms they may represent the activation of dysfunctional schemata (self-referent beliefs) such as "I am unlovable" possibly derived from unsuccessful attachment experiences across the lifespan (James, 2003). If belonging is a fundamental human motivation as hypothesized by Maslow (1954) and more recently by Baumeister and Leary (1995) then loneliness could be viewed as lack of a sense of such belonging. The degree of distress associated with loneliness becomes more understandable in these terms.

Newbern and Krowchuck (1994) considered feelings of disconnection from the community to be a natural consequence of loneliness. The current study focuses on older people's sense of community connectedness in relation to depression; feelings of loneliness are assessed in this context, allowing the partial testing of Newbern and Krowchuck's (1994) assertion.

1.5 The stress process, risk factors and protective factors

There is a generally acknowledged association between stressors, such as adverse life events, lower wellbeing scores in older adults (Phillips and Murrell, 1994) and depressive symptoms (Glass, Kasl, and Berkman, 1997). However, it is clear that, as with other age groups, not all who experience such events become depressed (Mazure, Maciejewski, Jacobs et al, 2002). This raises questions relating to vulnerability and resilience factors, which may either attenuate or amplify the effects of stress in late-life (Zuckerman, 1999).

The suggestion that individuals may have a predisposition or "diathesis" to psychopathology has long been proposed. Diathesis has been considered biologically, produced by a genetic disposition (eg. Zuckerman, 1999), cognitively (eg. Beck, 1967) or socially (eg. Monroe and Simons, 1991). Depression is seen as best predicted by negative experience when a specific type of event affects a personal vulnerability. Evidence suggests that it is not the actual event occurrence which relates to measures of wellbeing, but the perception of the event (as either unscheduled or undesired) (Murrell, Norris, and Hutchins, 1984). In relation to Beck's diathesis-stress model (Beck, 1987), Mazure and colleagues (2002) found that the effect of a stressful life event was modified by cognitive/personality styles in predicting late-onset depression when medical illness and reduced physical functioning were controlled for.

Moving from a biological view of diathesis to a cognitive or social view leads to questions of "interactive pathways through which people may become depressed"

(Monroe and Simons, 1991). Logically, one might conclude that a diathesis will influence the manner in which a person negotiates life, and therefore to some extent the nature of stressors to which they are exposed; different people may navigate a life course that exposes them differentially to their respective areas of vulnerability. In addition, a cognitive vulnerability will influence the person's perception of those life stressors to which they are exposed throughout their life, and will, in turn, influence their behaviour in response to those stressors.

The schema-based approach to depression (Beck et al., 1979; Young, 1994) hypothesised that much of dysfunctional thought and behaviour could be elucidated by highlighting schemata established in early life (relating to the self, the world and the future). However, if the frequency with which a schema is activated is a crucial feature of its maintenance, then it has been suggested that different schemata will be continually evolving and fading over a person's life (James, 2003). The mental models approach (Champion and Power, 1995) and the "schematic models" of Teasdale and Barnard (1993) provide a more dynamic and flexible view of internal representation which incorporate persistent schema-type information into dynamically constructed models. James (2003) draws upon clinical experience to suggest that different features will take prominence in respect of an individual's view of self-worth over the life-course. A sense of security and belonging is highlighted alongside health as features of particular salience in late-life (Figure 1).

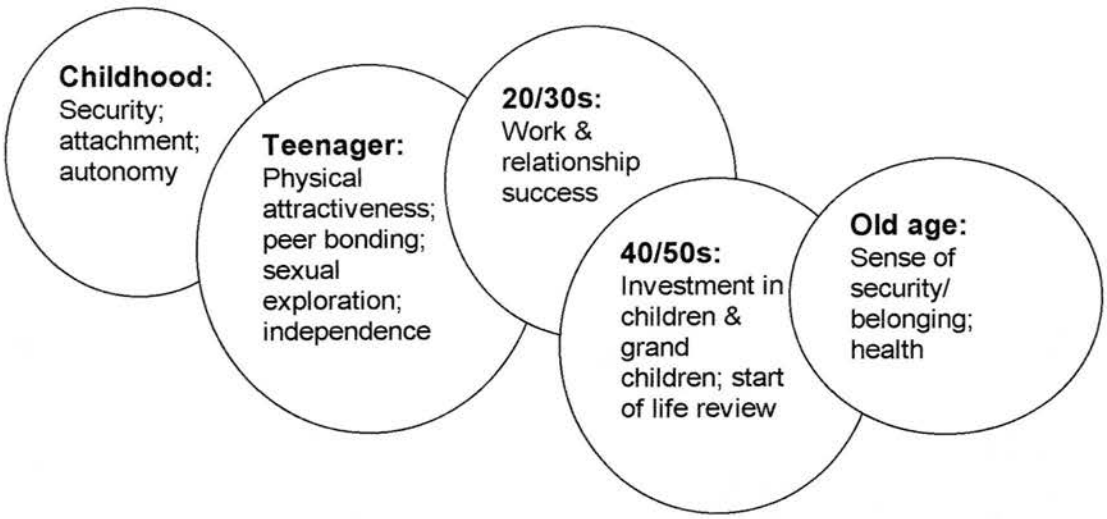

Figure 1. The "schemata" associated with self-worth (James, 2003)

It is clear that in reviewing the impact of stress on mental health, the diathesis-stress interaction needs to be considered alongside actual external environmental circumstances and the stage in life development. Taking a lifespan perspective, the question arises of whether individual vulnerabilities or diatheses have greater potency at different life stages? The potential for heightened salience of social circumstance (sense of belonging) to a person as they grow old and the potential for this to impact on existing cognitive vulnerabilities is of central concern to the current study, as is an awareness that a particular vulnerability may make one further susceptible to the perception of stress within these circumstances.

1.5.1 Ageing and the Stress Process

Diathesis-stress theories have been considered in the context of life stress research with the importance of distinguishing different forms and qualities of stress highlighted together with the need to be sensitive to the possible interrelations between these forms of stress in creating vulnerability to mental health problems (Monroe and Simons, 1991).

In an examination of the relationship between stress and wellbeing, Pearlin drew together different strands of research relating to both social and personal life and introduced the concept of "the stress process" (Pearlin, Lieberman, Menaghan and Mullan, 1981). The stress process model (Fig. 2) presents mental health as subject to the influence of social status, everyday living context, various types of stressors, and an individual's own resources. The interconnection between these various factors implies that a change to one can result in changes to others. Although this model fails to acknowledge the possibility of reversed causal order or feedback mechanisms from depression, it does provide a "general orienting framework that can guide the thinking of researchers about potentially stressful circumstances" (Pearlin, 1999). Indeed, it provides such a framework for the current study and related literature review. The application of the stress process model can also be useful clinically in guiding assessments of individual client circumstances (Zarit and Edwards, 1996).

Pearlin regarded social and economic status, gender, and race as impacting on virtually every element of the stress process. Although no explicit reference is made to age in this context, it is clear that both age and disability fit the criteria ascribed to statuses, both having the potential to impact on wellbeing "through their influence in shaping the contexts of people's lives, the stressors to which they are exposed, and the moderating resources which they possess" (Pearlin, 1999). Pearlin, as a sociologist, focuses on the inequalities intrinsic to stratified status systems. The mental health impact of such inequalities is of considerable clinical relevance to the practising clinical psychologist. Inequalities can, of course, be both culturally imposed and self-imposed – the former the arena of the sociologist or community psychologist, the latter, together with the personal meaning of both, the arena of the clinical psychologist. The growing awareness in the

literature of negative stereotypes of older people and negative attitudes to ageing discussed earlier is of particular relevance here (Gething et al., 2003; Thomas, 2003).

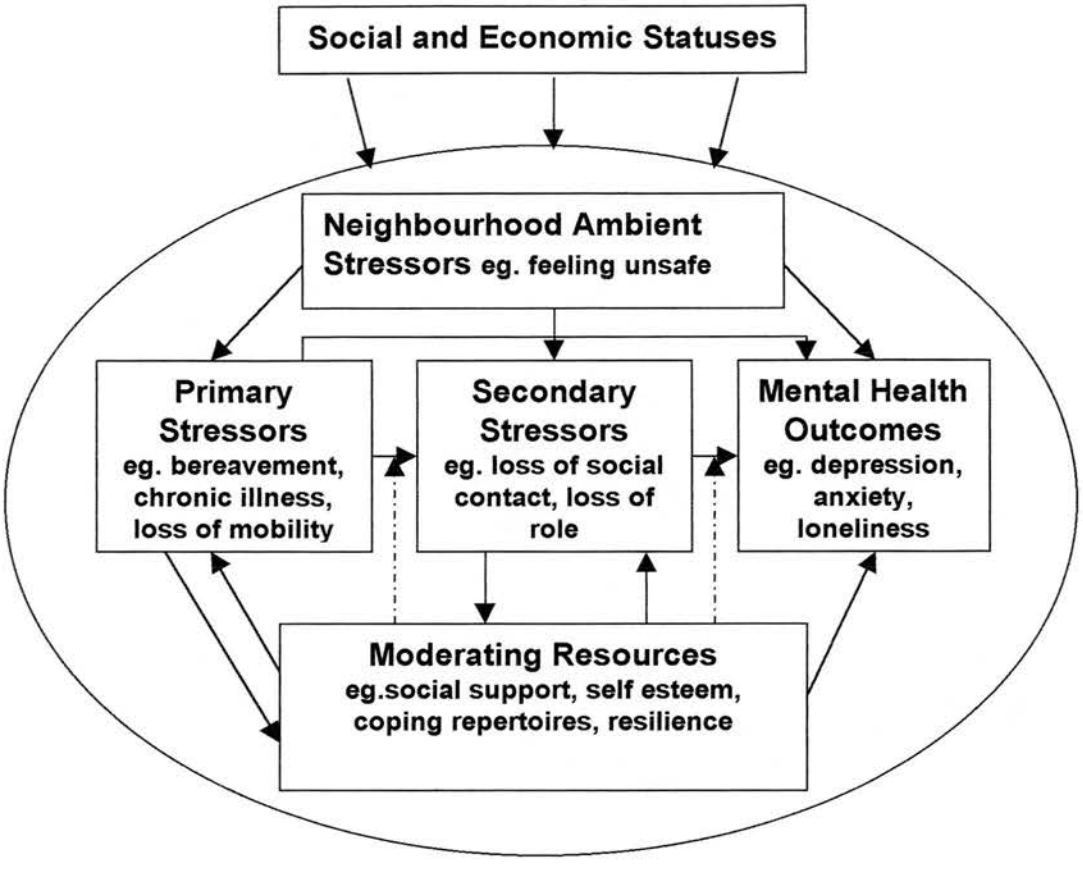

Figure 2. Stress Process Model (adapted from Pearlin, 1999)

Different types of stressors (life events and chronic stressors) can be identified and differentiated, together with the changing nature of these stressors across the life course. In later life for example, the unexpected long-term commitments entailed by the caregiving role have been highlighted (Pearlin and Aneshensel, 1994), and the consequent restructuring of other roles required by an individual's accommodation to this new "career". The development of further role strains and additional stress has been termed

"stress proliferation" (Pearlin, Aneshensel, and LeBlanc, 1997). In a lifespan context, it is possible to differentiate primary stressors as those events and actions directly related to ageing processes or transitions related to life stage from the secondary strains which involve changes in an older person's life resulting from these (see Figure 2).

Resources such as coping repertoires, social support and elements of self-concept, such as mastery and self-esteem, are described as "moderating" because of their capacity to impact on the development of the stress process, the effect of stressors and the proliferation of stress. Stress containment refers to the processes by which an individual can limit or decrease the effect of stressors by using the resources available to them. Moderating resources are not static - they may be enhanced or diminished by exposure to stressors; they enable older people to "be truly adaptive and not merely the passive objects of life's exigencies" (Pearlin and Skaff, 1995). There are clear parallels here with the concept of diathesis-stress and the possible "interactive pathways" described above. Successful aging would include the active use of moderating resources and effective stress containment, a tailoring of personal strengths to target personal vulnerabilities. Coping with stress involves an evolving, selective use of skills as one moves across the life-course (Kahana, 1992).

It is a well-researched finding that appraising events as stressful can lead to feelings of helplessness, threatening an individual's self-esteem, a key moderating resource (Seligman, 1975; Lazarus and Folkman, 1984; Cohen and Wills, 1985). Although the

appraisal process is implicit in Pearlin's description of the stress proliferation process, its lack of explicit statement may reflect its sociological rather than psychological origins. Lazarus (1975) described the role of appraisal in the stress response, differentiating an individual's primary appraisal of an event or some aspect of the environment as stressful from their secondary appraisal of their ability to cope with the stress. According to this model, the form that an individual's primary and secondary appraisals take will determine the degree to which an individual shows a stress response. The extent to which older adults' appraisal of their moderating resources (particularly those relating to social connectedness and social support) impacts on their adaptation to life's changing circumstances are central to the concepts of active and successful ageing (Baltes and Baltes, 1980; WHO, 2002).

To test the validity of the stress process model for older adults is clearly beyond the bounds of a single research study. The current study aims instead, to provide a piece in the puzzle. Two potentially salient stressors, life events and declining health, are examined in relation to depression and the possible role of social connectedness or sense of community belonging as a moderating resource in late-life.

1.5.1.1 Life events as stressors in later life

Schlossberg, Waters and Goodman (1995) identified a framework of four major sets of factors that influence an individual's ability to cope with the transition implicit in a "life event":

- The situation variable – what is happening?
- The self variable – to whom is it happening?
- The support variable – what help is available?
- The strategies variable – how does the person cope?

Clearly, only the first relates to the objective characteristics of the event, whereas the others refer to the person experiencing it and their "social and material context" (Sugarman, 2001). The type of event, its developmental and social context, the perceived demand on physical and psychological resources in relation to available perceived resources determine whether or not a given event is considered to be a stressor (Orrell and Davies, 1994). The current study relates to older adults' appraisal of their social context and the heightened potential in late-life for this to impact on secondary appraisal of resources and ability to cope with life events and their associated stress.

Sugarman (2001) presented a useful conceptualisation of life events, both as markers (across the lifespan) and as processes. As such, the objective characteristics of events are differentiated from the subjective experience of them. Viewing life events as processes, with antecedents, durations, contexts and outcomes, highlights the dynamics of psychosocial transitions that take place in response to events across the lifespan.

The impact of life events on risk of depression has been a source of much systematic research attention since the 1960's. There are clear indications from this literature that the risk of depression is considerably increased following stressful life events, but that "there are many other causative and modifying factors" (Paykel, 1991). Life events have been presented as affecting mental health both by their disruptive effect, requiring change and readjustment to occur, and as meaningful experiences which arouse negative emotions (Bruce, 2002).

Aggregated life events have been found to be associated with new depression episodes in longitudinal population-based studies of older adults (Cervilla and Prince, 1997; Chen, Eaton, Gallo, Nestadt, and Crum, 2000). Case control studies have reported inconsistent findings, some supporting an association between depression diagnosis and life events (Brilman and Ormel, 2001), others not (Mazure et al., 2002). Such inconsistent findings may reflect the lack of recognition of the complex dynamic of psychosocial transitions implicit in most "life events" (Sugarman, 2001).

There are reasons to think that there may be differences between the effects of life events on younger and older adults (Orrell and Davies, 1994). On the one hand, physical frailty may increase vulnerability, whilst on the other, accumulated previous experience of stress may have made them more competent and more resilient (McCrae and Costa, 1988) or they may have developed a stoical attitude that loss events are to be expected (Neugarten, 1970).

The meaning of potential stressors may be shaped by the expectations that prevail at a particular stage of life (Rook, Catona, and Dooley, 1989). Two chronic strains commonly found in later life are financial hardship and chronic health problems. The potential for "stress proliferation" into other areas of life from both types of strain is high. However evidence suggests that because both types of strain are considered normative in later life, they may be less powerful sources of stress for older than for younger people (Pearlin and Skaff, 1995). Here again it seems logical to extend the stress process model (Fig. 2) to incorporate age within "status", so that all stressors are appraised within the context of an individual's life experience and lifestage.

Various potential moderating variables and their complex interactions have been examined in relation to life events in older adults, with most research attention paid to self-esteem, social support, coping, physical health, and the occurrence of positive events (Orrell and Davies, 1994). Brown and Harris (1978) suggested that for depression the effects of life events were moderated by self-esteem and self-esteem has been found to be protective against depression in older adults (Murrell, Meeks, and Walker, 1991). Murrell et al (1991) suggested that life events *per se* might not be very stressful for older adults, but that the stress results instead from the indirect consequences on resources such as health and self-esteem. Both bereavement and poor health can be buffered by social support (a source of self-esteem), and yet at the same time, both may impact on the support available (Krause and Jay, 1991). In other words, loss of a protective factor can become a potential source of stress itself.

Pearlin and Skaff (1995) discussed the differing impact of stressors on different individuals in relation to their salience and their predictability. If stressors occur in an area of central importance to the individual, they are more likely to impact on well-being (Krause, 1994). Champion and Power (1995) have highlighted the heightened risk of depression associated with overinvestment in a single role. Late-life transitions can impact on the range of potential roles available to the older person. Factors which promote successful adaptation and resilience in the face of such transitions merit further research. The increased salience in later life of the esteem-enhancing factors of sense of belonging and socioemotional support are of central concern to the current study together with their potential to buffer the effect of particular stressors; life events and declining health.

1.5.1.2 Declining Health as a Stressor in Later Life

An association between physical ill-health and depression in older people has long been recognised (Walker and Katona, 1997). However, causal relationships remain unclear. Complexities abound in the literature, with the use of different instruments, different medical conditions, inpatient and outpatient groups amongst others. Clinical presentation can be confusing, with the potential for depressive somatic symptoms to be confused with co-existing physical illness. Physical illness itself may also give rise to physical symptoms commonly associated with depression. Theoretically, depression can result from a combination of factors associated with an illness, such as its duration or level of pain, the individual's reaction to being ill, use of particular coping strategies, health beliefs and

locus of control, and the quality of support available. Despite these complexities, it is vital to develop a greater understanding of the interaction between physical health and depression in older people. The potential impact of depressive symptomatology on treatment compliance and recovery from illness, participation in and the success of rehabilitation, social functioning, and self-care are all key areas. Severely depressed older patients, particularly those expressing feelings of hopelessness, overestimate the risks of treatment, and underestimate its benefits, thereby potentially influencing their uptake of life-sustaining treatments (Ganzini, Lee, Heintz, Bloom, and Fenn, 1994). There is also increasing evidence of links between late-life depression and increased vulnerability to ill-health (morbidity), increased functional impact of ill-health (disability) and reduced survival (mortality) (Walker and Katona, 1997).

A new illness diagnosis (a "health-related event") has the potential to symbolise advanced ageing and heighten a sense of mortality. Associated reduction in social activities, increased disability, a change in the nature/balance of social relationships, and possible residential relocation have all been identified (Bruce, 2002). In longitudinal studies, aspects of physical health have been found to be closely related to incidence of late-life depression (Kennedy, Kelman and Thomas, 1990). Phifer and Murrell (1986) found the incidence of significant depression in a six months period to be closely associated with changes in physical health. Kennedy et al. (1991) also found changes in health contributed substantially to chronicity of depressive symptoms and to recovery. A stronger association between poor physical health and depression was found in the age

group of the current study, the "old-old" (75 and above) and for men than for 55 to 64 year olds and women (Beekman et al., 1995).

Somatic disease itself has been reported to be of lesser importance than functional impairment (Zeiss et al., 1996). In an examination of the prevalence and correlates of depression in a population of nonagenarians, disability in daily living was found to be correlated with both depressive symptomatology and a depression diagnosis (Forsell et al., 1995). Cardiovascular disorders, cerebrovascular disorder and malignant tumours had no such correlation when other variables were controlled for, suggesting that disability rather than physical disease *per se* is a more important risk factor for depression, even in this much older cohort. Many population-based cross-sectional studies support the association between depression and physical disability in late-life, whether depressive symptoms are assessed (Ormel et al., 1997) or diagnostic measures are used (Forsell et al., 1994; Prince et al., 1997). For community-dwelling older adults, the presence of disabilities increases the risk of depression four-fold over one year, controlling for demographic, medical, and other psychosocial risk factors (Prince, Harwood, Thomas and Mann, 1998).

Several longitudinal studies have supported the predictive effect of depressive symptoms on functional decline (Bruce, Seeman and Merrill, 1994; Stuck et al., 1999; Penninx, Leveille and Ferrucci, 1999), whilst other studies have shown the converse effect, that disability is associated with increased risk of depression (Kennedy, Kelman and Thomas,

1990; Bruce and Hoff, 1994), suggesting that depression and disability reciprocally increase the risk of each other over time. Bruce (2001) suggests that although this confusing picture may reflect methodological flaws, such as selection bias or confounding effects, the suggested mutual risk has theoretical support. Gurland, Wilder and Berkman (1988) conceptualised disability as increasing the risk of depression because of the stress it provokes. At the same time, they also proposed that specific depressive symptoms, such as sleep and appetite disturbance, have direct deleterious physical effects, which, over time, lead to functional decline and disability, together with an indirect negative impact on health behaviours. Depression may also result in reduced motivation to take up appropriate healthcare or healthy lifestyle options. In view of the fact that not all people who are depressed become disabled, and not all those who have disabilities become depressed, Bruce (2001) highlights the need for future research to examine this relationship more closely. It may be important to tease apart specific aspects of depression and disability, and examine what "biological, psychological, social, and environmental factors predict robustness or recovery in the face of depression or disability" (Bruce, 2001).

Beekman et al (1995) found that subjective measures of physical health (pain and self-rating of health) were more strongly related to levels of depression in older adults than "relatively objective measures" such as the number of chronic diseases or degree of functional limitation. Unfortunately, relatively few studies of late life depression have

incorporated a measure of subjective health or of the degree to which protective factors impact upon the appraised stress of declining health.

When Evans and Katona (1993) assessed elderly primary care attenders in the London borough of Islington with the Geriatric Depression Scale (GDS-30) they found that, although the effect of physical illness on depression was significant regardless of the existence of a confiding relationship, it was larger in those without such a relationship. The death of a loved one is consistently and strongly associated with subsequent depression in studies using diagnostic criteria (Schoevers et al., 2000) and self-reported symptoms (Turvey et al., 1999). The loss of a confiding relationship appears crucial both as a primary and secondary stressor (Pearlin, 1999).

The salience of health may change with increasing age. Certainly Bowling and Browne's (1991) study found that health status in people over 85 was a more powerful predictor of emotional wellbeing than social network and support variables. However, this study population showed very little variation in network size and the majority of respondents could identify "someone they could rely on, who understood them and who they felt cared about them; most also expressed satisfaction with their level of social activity and contacts". These were the "survivors" who, whether by dint of circumstance or by choice, had a much-reduced small but select network, providing satisfactory practical and emotional support. It is therefore impossible to tell from this study whether priority was given to health rather than support because of their fairly high levels of support, or

because health was indeed more important to them. It does however raise important questions about possible changing values and priorities across the later years of life which need to be borne in mind for future research together with the potential for similar changes in vulnerability to differing types of stress.

1.5.2 Risk Factors and Protective Factors

By definition, identification of a risk factor or protective factor for depression requires knowledge of a temporal sequence; the factor is associated longitudinally with elevated or diminished probability of depression occurring. Although large-scale longitudinal studies measuring risk factors in initially disease-free populations are the most methodologically sound, such studies are hugely costly and outwith the possible time frame of the current study.

In considering risk factors, it is important to recognise that, even with longitudinal studies, although a risk factor may have significance, it is almost impossible to determine the direction of causality, except when factors, such as gender or other genetic features, are present from birth. Other factors consistently identified as risk factors, such as physical health status and social contact, are also known to be influenced by depression (Bruce, 2002).

Bearing these reservations in mind, studies taking place with older adults throughout the 1980's using the Centre for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977), described a consistent pattern of risk factors for depressive symptoms, including poor health, bereavement, and lack of companionship (Kennedy, Kelman, Thomas et al., 1989).

It is of particular relevance to the promotion of healthy ageing to determine why some older adults appear to be vulnerable to depression, whilst others appear to be resilient. Factors which have been extensively researched and consistently identified as "protective" have been coping styles, perceived control and efficacy, and social support (Fiske et al., 1998). Given the heightened rates of depression identified in a particular community, the factors considered to be of potential pertinence to the current study were psychosocial factors, and their relationship to depression in the oldest-old age sector (75+). Reference will be made to coping style, perceived control and efficacy within the context of lifespan development and adaptation. In terms of the "stress process", adaptive use of moderating resources according to life's changing circumstance is of fundamental interest to the current research and a determination of which psychosocial factors impact on this process.

In reviewing the literature it is helpful to bear in mind the two models Cohen and Wills (1985) proposed to explain the mechanisms by which certain factors influence health outcomes. According to the buffering (stress-specificity) hypothesis, a factor is related to

wellbeing because it acts as a buffer specifically when an individual is under stress; it helps the individual cope with stress. The universal (main effect model) proposes that a factor is beneficial in itself and will be associated with better outcome irrespective of whether the person is under stress. The factor's presence will reduce the effect of the stressor and its absence will itself act as a stressor. The two models are not intended to be viewed as mutually exclusive. In either model, a specific factor is proposed as protective against ill-health, whether physical, mental, or both.

1.6 Psychosocial risk factors and protective factors for late-life depression

1.6.1 Social Support and Social Ageing

Champion and Power (1995) have highlighted the crucial importance of social relationships and social context to the facilitation and evaluation of goals and plans across the lifespan, drawing together the cognitive vulnerability approach (eg. Beck et al, 1979) and the social vulnerability approach (Brown and Harris, 1978). The issues of social support and social context are of particular importance for older adults, since common life events may jeopardise the support networks of this age group. Transition from work to retirement, and more frequent bereavements with consequent loss of support when friends or loved ones die are pertinent examples at this stage in life (Minkler, 1985; Kahn et al, 2003). Physical impairment and chronic illness can also place limitations on an individual's ability to interact with others (Newsom and Schultz, 1996; Penninx, van

Tilburg, Boeke et al., 1998). Such common examples of transitions in late life are generally outwith the older person's control, not chosen strategies for healthy ageing. However, the active selection and adoption of moderating resources in the context of such losses would be (Baltes, 1993; Pearlin, 1999). In order to adapt successfully to such transitions older adults need to adjust their roles and goals accordingly (Champion and Power, 1995).

1.6.1.1 Conceptualisation of social support

There is considerable diversity of opinion over how the multifactorial construct of social support should be conceptualised. At times, it has been in terms of demographic or social group characteristics (Aneshensel 1992), with associated research concentrating on the structural aspects of social support/support networks (eg. Wenger, 1991; Thoits, 1995; Kirby, Denihan, Bruce et al., 2000). However, more attention has been paid recently to the functions of social support and appraisal of support adequacy (eg. Wethington and Kessler, 1986; Lam and Power, 1991).

1.6.1.2 Support structure and function

Clearly, the importance of the social structure and received support to any individual lies in the degree to which needs are fulfilled - the support functions. These functions have been summarised as the set of personal contacts through which an older person maintains social identity, receives appraisal for self-evaluation, and receives emotional support

(liking, love), material aid, instrumental aid (services), information (about the environment), and new social contacts (Bowling and Browne, 1991).

"Esteem support" (Cohen and Wills, 1985), or the promotion of self-esteem through the support of others, reflects Cobb's (1979) assertion that social support is a measure of the level of certainty with which an individual experiences being valued and feels able to count on others should the need arise. In terms of how older adults view their neighbours, such support has been regarded as providing a sense of "mutual aid" - a sense of stability and security (Unger and Wandersman, 1985). The degree of social support perceived as received influences the degree to which one feels valued, and the consequent self-appraisal of the degree to which one deserves to be valued (self-esteem) further influences one's ongoing appraisal of social support. In terms of the psychological wellbeing of older adults, this would suggest that continuing opportunity for social support and particularly esteem support could be of crucial significance.

Surveying the health and social circumstances of the oldest-old (85+), Bowling and Browne (1991) questioned why some frail older people are able to continue living successfully in the community, whilst others do not. They concluded that a critical role is played by the nature of their family and friendship networks. In a study of the meaning and measurement of friendships for 94 older adults, Rainey, McGuinness and Trew (1992) concluded that the function of relationships with friends may differ from those with family. While older people typically receive practical support from spouses and

relatives, they value friends for the companionship and emotional support which they can provide (Lee, 1985). Interactions with friends, rather than contact with relations best predict wellbeing (Bowling, 1994). According to Ishii-Kuntz (1990) the primary providers of emotional support for older people "are their close friends whose relationship is based upon more equal status". The fact that friendship generally rests on mutual choice suggests that it may sustain a person's sense of usefulness and self-esteem more successfully than kin relationships which may include a sense of obligation and intergenerational differences (Silverstein and Bengston, 2001; Laidlaw, Thompson, Dick-Siskin, and Gallagher-Thompson, 2003).

It has been suggested that, the presence of a confidante may also enable the development of effective coping strategies in the over-85's (Bould, Sanborn and Reif, 1989). However, since confidantes are often "age-mates" the oldest-old are at highest risk of losing them through death or disability. The loss of a protective factor becomes a potential source of stress through the heightened risk of isolation associated with it and the loss of esteem support and associated appraisal of self-worth. To have a confidante often equates with being a confidante; the loss of one brings about the loss of the valued role of the other.

The importance of intimacy with social contacts and the protective quality of such relationships is well supported by the literature for all age groups (Brown and Harris, 1978; Bould et al., 1989). Conceptualising an individual's support system as layers (Figure 3), Lin, Ye and Ensel (1999) provided a useful model, relating objective support

structure and support function to mental health. The inner layers of the system, associated with more frequent social interactions, "bonding relationships" and the strongest ties, confiding, "binding" relationships, require increasingly greater effort than mere "participation" and promote better support functions. It is these support functions which directly affect mental health. The authors argue that the location within the social network (eg. immersion in intimate relationships) is the vehicle by which access to support is gained and which in turn, provides protection against distress.

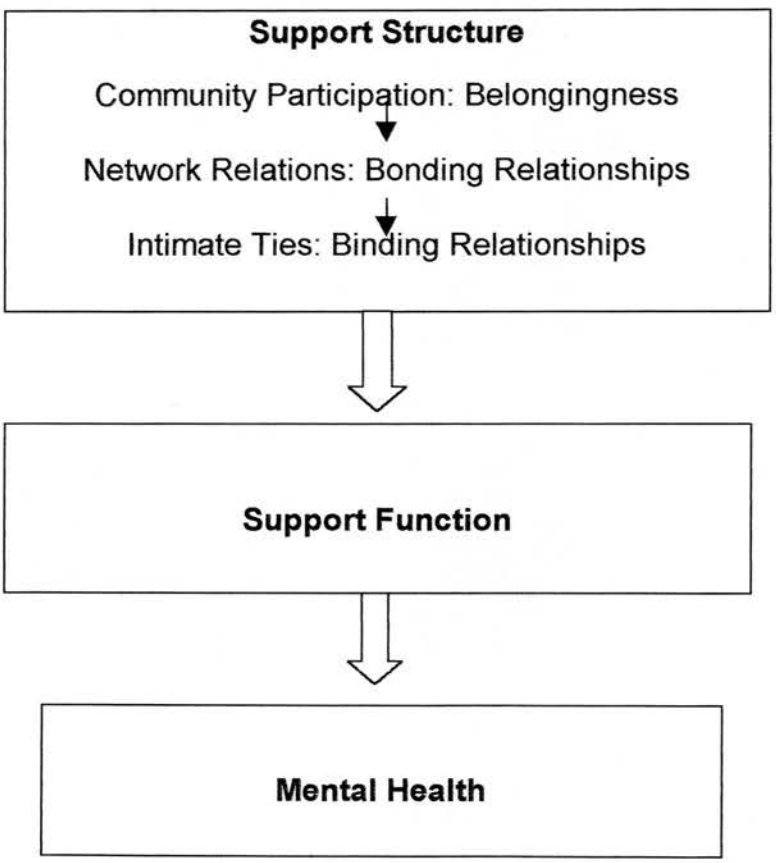

Figure 3. Conceptual Model proposed by Lin et al. (1999)

One possible explanation for the protective function of the structural elements of social support is that "structural positions trigger a cognitive capability to manage stress (eg. self-efficacy, self-esteem, self-competence)" (Lin et al., 1999), implying an effect of cumulative past social support experience; such a cognitive capability would provide both a buffer to stress and a direct protection against distress (Cohen and Wills, 1985).

1.6.1.3 Main effect and buffering effect of social support

Social support may directly enhance psychological wellbeing and/or it may act within a specific context of particular stressors encountered by older adults buffering their risk of depression (Bruce, 2002). Lack of it and particularly of a confiding relationship, may increase the risk of depression directly, and also of other risk factors for depression, such as life events and major difficulties (Champion, 1990). The literature supports both a main effect of social support and a buffering effect (Cohen and Wills, 1985). The main effect may be seen as directly resulting from the regular positive experiences and the set of socially rewarded roles provided by a large social network. Cohen and Wills (1985) related this kind of support to overall wellbeing "because it provides positive affect, a sense of predictability and stability in one's life situation, and a recognition of self-worth". Social experiences influence the formation and evolution of self-worth schemata across the lifespan with particular social connections changing in salience with age (James, 2003) (Figure 1).

In considering the possible stress-buffering mechanisms of social support the concept of appraisal of stress is introduced (Lazarus and Cohen, 1973). One effect may intervene post-event (or expectation of the event) by altering/preventing a primary "stress appraisal response". Knowing someone might help can change the impact of the stressful event - it actually seems less stressful. Social support may also provide a benefit to the individual post-appraisal of the event as stressful but before obvious depressive symptomatology; here the individual evaluates the different pros and cons of their different coping strategies or "moderating resources".

1.6.1.4 Appraisal of social support

Research with older adults with varying degrees of disability supports the view that an individual's perception of their social network as including people who care for and have an interest in them and their emotional well-being is more important to mental health than the actual amount of support provided (Wallsten et al., 1999). Such findings suggest that practical support may be less important to older adults than emotional support, even though it is likely that the majority of service provision for older adults focuses on the former rather than the latter. Inequity of resource allocation for older adult clinical psychology provision may reflect a similar misjudgement.

The quality of social support can be expressed as the discrepancy between its actual state and the desired or ideal state of the support; the smaller the discrepancy then the more satisfied a person will be (Power, Champion, and Aris, 1988). Midwinter (1991) and

Lam and Power (1991) found that the majority of older people they interviewed were satisfied with the level of social support they received. However, Lam and Power (1991) found depressed older people expressed lower levels of satisfaction with both their emotional and practical support than their non-depressed peers. No difference was found between groups in the number of reported roles (significant others), supporting the notion that the perceived adequacy of older people's social support is more important than the quantitative measurement of their network characteristics. Although the study provided useful directions for further research in this area, it was limited by its cross-sectional design, its under-representation of people over 75, and by the fact that the majority of individuals in the depressed group were only mildly depressed. Part of the current study attempts to replicate Lam and Power's (1991) findings but with a sample entirely aged over 75 and with more severe depressive symptomatology.

Clearly, methodological concerns exist over whether subjective distress and depressive symptoms act as confounders. However, in an examination of relationships between depression and social support, Krause, Liang and Yatomi (1989) asserted that no such confounding was present, and that satisfaction with support did, indeed, influence subsequent depression. A recent study by Kahn, Hessling and Russell (2003) examined the role of negative affectivity in the relationship between social support, health and wellbeing among older people. Individuals with perceptions of greater social support reported being less depressed, less lonely, and more satisfied with their lives than individuals who perceived less social support. Individuals with high levels of negative

affectivity (NA), on the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), tended to report less social support and were more likely to report being depressed, lonely, dissatisfied with their lives and in poor health. However, using both path analysis and commonality analysis, the authors report that a) NA had a much stronger explanatory role than social support did predicting physical health, b) NA and social support had approximately equal explanatory roles predicting depression, and c) social support had a much stronger explanatory role than NA when predicting both loneliness and life satisfaction. Although these findings support a spurious relationship between perceived social support and self-reported physical health, no such evidence was found for a spurious relationship between perceived social support and psychological health. Although NA may bias an individual's reported perception of social support and wellbeing, the bias does not appear to be strong enough to jeopardise the significant relationship between social support and wellbeing. This is of particular importance to the current study which examines the relationship between certain aspects of social support and depression in older adults.

There are two possible mechanisms by which perceived social support could provide protective benefits in relation to mental health, neither of which is mutually exclusive. The first focuses on the "here and now", relating perceived support to an individual's ability to cope with particular current stressors, whilst the second takes a developmental perspective, regarding social support as crucial to personality and social development (Turner and Turner, 1999). The "cognitive capability" discussed by Lin et al. (1999) or

Pearlin's (1999) "moderating resources" may well reflect the important role of social experiences developmentally, and their influence over access to and appraisal of social contact across the life course.

1.6.1.5 A developmental perspective on social support

Developmental psychology has long recognised the crucial significance of human associations in personality and social development (Bowlby, 1969). Appraisals of social supportiveness may reflect "support schemata" which "encompass one's expectations about the forthcomingness of the social environment in providing aid should one need it" (Turner and Turner, 1999). There is evidence to suggest that ongoing socially supportive experiences (positive and negative) will impact on early beliefs and expectations and, in turn, on an individual's confidence about the availability of social support (Sarason, Sarason and Pierce, 1990; James, 2003). "The perception of being loved and wanted, valued and esteemed, and able to count on others must be a function of one's history of supportive and unsupportive experiences, with both early life and recent experiences representing significant influences" (Turner and Turner, 1999).

Resilience to stress may well result from the cumulative experience of positive social interactions throughout development (Werner and Smith, 1992), with such resilience depending as much on the ability of the individual to elicit support from the caregiving environment as on the capability of those in the environment to supply their needs.

1.6.1.6 Social ageing

As discussed with reference to successful ageing, the potential role of social relationships in later-life adaptation has been a source of debate and research since the 1950's with various theoretical models of social ageing proposed. Disengagement theorists (Cumming and Henry, 1961) and activity theorists (Lemon, Bengtson, and Peterson, 1972) present contrasting views; the former considering social withdrawal an adaptive response to personal loss and social forces, the latter arguing that successful adaptation in later life requires older people to be socially active. More recently theorists have considered social relations from a life-course perspective (Atchley, 1993; Marsiske, Lang, Baltes, and Baltes, 1995). The role of life-long adaptive and motivational mechanisms that regulate social contact have been emphasised by socioemotional selectivity theory (Carstensen, 1995). According to Carstensen, the nature of goals related to social contact change across the life-course, from information-seeking in youth to emotionally-driven in later life. Research findings support the notion that older people choose and manage their social relationships to maximise the attainment of emotional benefits (Lang and Carstensen, 1994). The selective optimisation and compensation model of successful aging has been applied to social adaptation in later life (Baltes and Carstensen, 1996). In successful adaptation an older adult would select appropriately meaningful social goals, optimise the chances of attaining the goals by careful selection of social network resources, and by ensuring esteem-enhancing qualities within the social relationships, through mechanisms such as generativity and reciprocity.

Older adults are highlighted by Lang and Carstensen (1998) as active agents in relation to their social support rather than passive recipients - they select, mould, and manage their social relationships according to their needs, preferences and competencies. The concession is made, however, that "the extent to which an individual can exert control over their social relationships is constrained by the structural and functional characteristics of their social context".

With age, people do find their support networks contracting, often outwith their control. If aging is considered as taking place within a convoy (Antonucci and Akiyama, 1995), then "there are many long term survivors who can be described as the last ship afloat" (Pearlin and Skaff, 1995). Death of peers, relocation, and frailty can all undermine networks and the support they would provide. The social convoy metaphor illustrates dynamic and age-related changes in social networks over the lifespan. It implies an ever-increasing knowledge base, allowing people to select network members suited to particular functions. By implication, such a knowledge-base would also entail a greater awareness of what is lacking in one's network, and this will, according to socioemotional selectivity theory, be particularly salient in relation to emotional support gaps. Recognising the importance of perceived adequacy of support in relation to depression (Lam and Power, 1991), the greater knowledge and awareness of older adults in this area may heighten their vulnerability to depression. The current study aims to examine the relationship between perceived adequacy of social support and late-life depression. In terms of the stress process model, lifespan development allows an older adult to more

critically appraise the match or mismatch between their moderating resources and stressors and strains.

1.6.1.7 Social support in late-life depression studies

Various studies have lent support to socioemotional selectivity theory and the protective value of emotional support in relation to late life depression. Of Brown and Harris' (1978) four vulnerability factors in younger women, only the lack of a confidante (socioemotional support) was found by Murphy (1982) to play a role in depressive illness in older people. Kennedy et al.'s (1989) cross-sectional study of characteristics associated with depressive symptoms in an urban sample of older adults found the presence of depressive symptomatology to be significantly greater in participants with fewer opportunities for companionship, including widows and those who lived alone, spent the day alone, had no one in whom to confide, were not employed, or did not make new friends.

In an examination of the possible modifying effects of different hypothesised vulnerabilities on stress factors in late-life, no evidence of such an effect was found for personal/family history of mental disorder nor the presence of cognitive/organic symptoms at baseline or follow-up (Schoevers et al., 2000). However, study participants without a marital partner were more vulnerable to depression in the presence of functional disabilities. The fact that marital status did not attain significance as an independent risk factor for depression suggested that being married provided a protective

or buffering effect. Social support was found to provide a similar buffering effect when those who were unmarried faced reduced functional abilities. Large cross-sectional studies (Penninx et al., 1996) and longitudinal community based studies (Phifer and Murrell, 1986) have reported similar buffering effects for social support.

GDS scores have been found to correlate significantly with both lack of a current confiding relationship and a life-long lack of intimacy in elderly primary care attenders (Evans and Katona, 1993). The buffering effect of socioemotional support was also supported in this study, with the effect of life events on depression only evident in participants without a confiding relationship, and a similar buffering effect was demonstrated for chronic difficulties. The effect of physical illness on depression was significant regardless of the existence of a confiding relationship, but it was larger in those without such a relationship.

Schwarzer and Leppin (1989) conducted a meta-analysis of 55 studies examining an association between social support and health. Outwith the overall analysis which showed considerable variation they examined the association between social support and poor health with respect to age, and found an age trend indicating an important point, that social support may be more health-relevant with increasing age.

Wallsten et al. (1999) examined the relationship between depressive symptoms and disability, together with the mediating effect of both instrumental support level and the

individual's subjective appraisals of the support network. As expected, greater disability was associated with increased depressive symptoms. A weak relationship was demonstrated between level of instrumental support and depressive symptoms, but there was a strong association between a positive appraisal of social network and a lower number of depressive symptoms. A significant interaction between disability and appraised support suggested that "social support mitigates the depressive effect of disability only when the network's efforts are appraised positively" (Wallsten et al., 1999). In terms of a buffering role, the objective features of a network again appear to be less crucial to mental health than its subjective appraisal.

The Gospel Oak Project (Prince et al., 1998) was a cohort study of a whole population aged 65 and over in a defined area of North London. It set out to investigate the role of various factors in modifying the association between disablement and the incidence of pervasive depression. The only social support measure associated with the onset of depression was lack of contact with local friends. "Often feeling lonely" at index assessment was strongly associated with the later onset of pervasive depression. Currently married subjects were at lower risk of developing depression relative to other marital status groups, in particular those who were never married or those who were separated or divorced. Prince et al (1998) described marital status, loneliness and contact with friends as indices of social *milieu.* The fit of their initial model for the onset of depression which was built around the three impairments which they found to be associated with depression (breathlessness, sleep problems and pain), was significantly

improved by extending it by the indices of social *milieu.* A marital status by gender interaction term was included, since among the married, women were at much greater risk than men of developing depression, while in the never married, the effect was reversed. In relation to the maintenance of depression, the study found that those who attended clubs at index assessment were much less likely to remain depressed. A similar effect was not seen for those attending church or local authority day centres, perhaps reflecting a degree of obligation in attendance. Their most parsimonious logistic regression model for the outcome of the maintenance of depression contained just two variables, attending clubs and having three or more social support deficits (SSDs). Although each SSD was modestly associated with depression, the stronger graded relationship between number of SSDs and depression suggested a powerful cumulative influence.

The cross-sectional design of the Gospel Oak study precluded conclusions relating to temporal order or causality; however the clustering of handicap, loneliness, lack of social support and depression defined a group of people with a poor quality of life. As such, such studies may be an important source of information for public health interventions. The current study has used the same measures of SSDs, loneliness and life events as the Gospel Oak study in order to be able to draw useful comparisons.

Despite the Gospel Oak study finding that depression was detected in over forty per cent of the most handicapped section of the population, over thirty per cent of the same

section of the population was free of depression at both assessments. The authors set out "to identify the source of their resilience in the face of adversity". The frequency of contact with friends and the related measure, "often feeling lonely", acted as a "buffer", reducing the excess risk of depression in the presence of handicap. Both disablement and lack of social support were strongly associated with prevalent depression. A possible explanation for the strong cross-sectional associations may be mutually reinforcing cycles. "Disablement may limit the potential for social participation, and reduce the wider availability of social support, hence delaying recovery from the depression which it provoked" (Prince et al., 1998).

1.6.1.8 Social support and a sense of dependence

Much of the social support literature implies its beneficial properties, both physically and emotionally. It is also clear, however, that a sense of dependence on others can prove detrimental. This is of particular pertinence in an ageing population (Rook, 1990; Wallsten et al., 1999), where some older adults appraise practical support received as greater than their ideal (Lam and Power, 1991). It has also been suggested that negative social support experiences may exert a greater influence over health than positive ones (Rook, 1990). Reciprocity is seen as crucial to the positive value of social support (Wallsten et al., 1999), with lack of this feature being related to reductions in sense of personal control and of being valued. "Giving support is an important way to matter to others and to avoid a sense of uselessness and isolation" (Pearlin and Skaff, 1995). To

maintain such reciprocity in the context of declining health presents older adults with a particular challenge.

The empirical literature generally supports the view that wellbeing is higher with an increasing number of social roles in younger and older adults (Colman and Antonucci, 1983; Adelmann, 1994). Such findings lend support to activity theory and Erikson's view that optimal adjustment in late-life involves continued active involvement in roles and activities such as creative leisure pursuits, volunteering and grandparenting (Erikson, Erikson and Kivnick, 1986). Champion and Power (1995) argue that cognitive vulnerability to depression is related to the extent to which one highly valued goal is pursued to the exclusion of other goals or roles. Once again the importance for older adults selecting well from an increasingly limited network and optimising its use (for socioemotional support) is apparent. Whether certain networks and communities facilitate this adaptation process for older adults is discussed below.

1.6.2 Communities and support networks

1.6.2.1 Communities and late-life depression

It has long been considered less healthy to live in an urban setting than a rural one, and, reports suggest, that, despite major environmental improvements, mortality rates in British cities still exceed those in less urban environments (Britton, 1990; Lewis and Booth, 1994). City life in developed countries is also associated with poorer mental

health in both adults (Blazer et al., 1991) and children (Rutter, 1991). Lewis and Booth (1994) set out to determine whether residents of urban parts of Britain had a higher prevalence of psychiatric morbidity, using the General Health Questionnaire (GHQ; Goldberg, 1972). Urban residents had a much higher prevalence of psychiatric morbidity than those resident in country areas. These associations persisted after adjustment for social class, physical health, and employment status. The conclusion is drawn that there is "a need to identify the psychologically harmful elements of urban life in the hope that they can be made happier and healthier places to live" (Lewis and Booth, 1994).

There is clear evidence that older people's subjective appraisals of their environment account for more variation in community sentiment than do independently-measured objective conditions. In an analysis of older residents' neighbourhood satisfaction in a metropolitan district, residents' perceptions of their "happiness with neighbours" explained substantially more of the variance in satisfaction than objective measures, such as the urbanism of the neighbourhood or the amount of empty housing (La Gory, Ward and Sherman, 1985). This favouring by older adults of "happiness with neighbours" over the objective environmental features of a neighbourhood may reflect a heightened salience of social inclusion, of "being part of the community" rather than just living in one. Lack of such happiness may, as a result, be more pertinent in later life and may prove to be, in Lewis and Booth's (1994) terms, one of the "psychologically harmful elements" which distinguish communities with heightened rates of late life depression.

The word "community" derives from the Latin "*communitas*", meaning "shared or common". As Laboute (1997) pointed out, sharing is not some demographic datum; it represents a dynamic act of people being together. Calling something community does not necessarily make it so. There can be greater or lesser degrees of "communityness" (Walter, 1997). It seems likely that La Gory et al.'s (1985) measurement of "happiness with neighbours" was a simple measure of this construct of "communityness" in older adults. Minkler (1997) described a concept of "secure embeddedness" in a family, workplace, or neighbourhood and the lack of such "embeddedness" as representing "not only a social hazard, but a public health hazard". Heightened levels of physical and mental health risk in those without such "secure embeddedness" within their community was clearly implied. Such an implication would concur with Pearlin and Skaff's (1995) assertion that "being embedded in a supportive network of friends and family is one of the best protectors against the stressors that confront people of any age". The moderating effect of a supportive community for older adults may not lie in its size or location but in how secure those who live within it feel, whether they feel they belong (James, 2003).

Though rates of depression at all life stages have generally been reported to be higher in urban communities, recent studies in Europe have shown that not all urban communities are equally prone to such heightened rates (Lehtinen and Joukamaa, 1991; Copeland, Beekman, Dewey et al., 1999). In the Mini Finland Health Survey (Lehtinen and Joukamaa, 1991), difference in prevalence of depression by region was clear. The two areas with the highest and lowest prevalence rates were both industrialised areas.

However, the highest prevalence was in an area which had received a lot of newcomers in the post war period, whereas the population with the lowest prevalence was described as having been more stable than other parts of the country. If length of time resident in an area were to be found to impact on degree of social integration, then such a finding would further support the proposed importance of social integration in relation to depression.

The EURODEP Consortium (Copeland et al., 1999) was a European Commission funded Concerted Action Programme with a number of objectives related to levels of late-life depression in Europe. It set out to study the variation in prevalence of depression across Europe, its clinical features and mode of presentation, and to examine social support networks, adverse life events, and other risk factors. Between-centre differences in prevalence of depression were found that could not be accounted for by age, gender, or marital status. Geographical region and type of instrument explained about half of the variance, with dominant religion appearing to have little relevance. The collaborators concluded that closer examination of these between-centre differences could generate hypotheses for further study. They described the considerably lower prevalence of depression among older people in Liverpool and Dublin than in Gospel Oak, London (Prince et al., 1997; Copeland et al., 1999), despite similar levels of socio-economic disadvantage in all three inner cities. Perplexed by these differences, the authors asked: "What factors then explained the difference, and to what extent might those factors be

addressed in the high prevalence community?" (Prince et al., 1999); a very similar starting point to that of the current study.

1.6.2.2 Support networks and late-life depression

Different types of support network may dominate for older adults in different communities and this may partially account for differing rates of depression. Wenger (1995) compared the distribution of older people's support networks in urban Liverpool and rural North Wales. "Support network" was defined as "those in the larger social network who are available, or perceived to be available, to provide: emotional support or companionship, instrumental help or advice on a day-to-day basis" (Wenger, 1993). Based on a longitudinal study of over 500 people aged over 65, Wenger (1993) had identified different types of support network differentiated by the availability of close kin, the level of involvement of family, friends and neighbours, and the level of interaction with the community and voluntary groups.

The five networks identified are summarised below:

1) *The local family dependent support network.* Community involvement is generally low in this form of network, with the primary focus on close family ties.
2) *The local integrated support network.* This includes close relationships with local family, friends and neighbours, with many neighbours also being friends. These are usually based on long-term residence and associated with involvement in church or voluntary organisations.

3) *The local self-contained support network.* Community involvement would be low key and there are few relatives in close proximity. People with this type of network are described as likely to say: "I like to keep myself to myself, but I know the neighbours are there if I want them".

4) *The wider community-focused support network.* These networks are associated with active contact with distant relatives and a high salience of friends and neighbours. These older people are generally involved in community and/or voluntary organisations with larger than average networks.

5) *The private restricted support network.* These networks are smaller than average and typically are associated with an absence of local family and contacts with neighbours or friends nearby is minimal.

Of these network types, the local family dependent and the local integrated have been identified as more robust in the provision of informal support to older people living in the community. With increasing age the prevalence of private restricted and family dependent support networks increased and the prevalence of locally integrated and wider community focused support network decreased in both community types, urban and rural. Interestingly, this may reflect a process of "socioemotional selection" (Lang and Carstensen, 1994). However, mere description of the network characteristics is of no value in determining this; what is required is a measure of the recipient's perception of the nature of support and of its perceived adequacy (Power, Champion and Aris, 1989).

Interestingly, of relevance to both the Mini Finland Health study findings (Lehtinen and Joukamaa, 1991) and the Eurodep studies (Copeland et al, 1999), local family dependent networks appeared to be "associated with stable residence patterns and indigenous populations" (Wenger, 1995). Cultural and religious differences were found to be related to network type in both communities, with locally integrated support networks more common among those who were Roman Catholics in Liverpool and "Chapel" in Wales, denominations described as "locally rooted" (Wenger, 1995).

Once again the importance of stability within a population was highlighted, with a clear link found between network type and migration patterns in the rural community; stable populations had more locally integrated and family dependent networks. The elderly population in Liverpool was found to be remarkably stable, with ninety-seven per cent having lived in the same neighbourhood for more than thirty years, compared with only sixty-two per cent of the North Wales study. In both study areas, those who had moved there more recently were less likely to have locally integrated support networks. "In other words there is a difference in lifestyle between incomers and 'locals' " (Wenger, 1995). Reflecting migration patterns, Wenger's study has shown that the distribution of network typology is related to the neighbourhood or community, place of birth and length of residence. Informal help is more readily available to those who have remained in the same place for more than thirty years. These differences may help to explain the lack of a clear urban/rural dichotomy, with some areas of the city or some rural areas able to provide more informal support than others.

Kirby et al. (2000) examined the support network distribution of community dwelling older people in Dublin and found that they enjoyed particularly high levels of informal support. This extensive support might be an important factor in the lower rates of depression found in Dublin than in other cities. Certainly, within the Dublin sample the support network pattern of the non-depressed older population was significantly different. Using Wenger's support network typology (Wenger, 1991), depressed older people in Dublin were found to have less local integrated networks and more family dependent and private restricted networks (Kirby et al., 2000).

1.6.2.3 Neighbourhoods and neighbours

The potential importance of an easily accessible "social network", the local neighbourhood, may well increase with age. The neighbourhood context of the oldest-old is of particular relevance to the current study. Neighbourhoods can be viewed both as places where problems can arise and as places which can give rise to their own problems, through what are termed "ambient stressors" (Pearlin, 1999). High level of residential turnover has been highlighted, since established networks are broken or never actually established (Pearlin, 1999). In the context of the current study, it is of particular relevance to examine neighbourhood factors in an attempt to gain a better understanding of factors associated with heightened levels of depression in a "new town" older adult cohort. It has been suggested that the relative importance of neighbourhood ambient stressors increases in later life, as older people are likely to leave their neighbourhoods less frequently than younger people (Pearlin and Skaff, 1995).

Kirby et al (2000) suggest that cultural differences may influence the amount of contact with neighbours and this, in turn, may be reflected in the association found between higher degrees of social integration in some communities, such as Dublin and lower levels of late-life depression. "Close involvement with neighbours and the local community is part of the Irish culture, particularly among older people, and may explain the high degree of social integration of this elderly population" (Kirby et al., 2000). Such an assertion requires further research to determine what influence other "cultural" factors may play in terms of depression, the role of social integration in different cultures and the differential role of individual psychological factors within these cultures.

It has been proposed that neighbours may play a crucial role in mental health terms. Of relevance to the increased salience of emotional support in late-life, studies linking social support to neighbourhoods have distinguished two types of supportive interactions potentially engaged in by neighbours: sociability and socioemotional support (Unger and Wandersman, 1985). "Sociability" refers to casual interaction, requiring only a minimum level of acquaintanceship, Lin et al's (1999) community participation level of the support structure, whereas "socioemotional support" refers to more intimate ties, such as close friendship or family ties in the neighbourhood (Lin et al's intimate ties/binding relationships level (Fig. 3).

Neighbours may foster "a sense of identification and serve as a buffer from feelings of isolation" (Unger and Wandersman, 1985) – they may foster a sense of belonging

(Baumeister and Leary, 1995; James, 2003). An older population may place a particularly high value on good neighbourly relations, in comparison with younger cohorts, as increased limitations on mobility may apply (Schwarzer and Leppin, 1989). A reciprocal relationship may exist between sense of community and social interaction, where positive face-to-face contact with neighbours enhances a shared emotional connection that, in turn, helps maintain a sense of community (Unger and Wandersman, 1985). If stability of population is taken as a measure of sense of community, then this may help to account for inter-community differences in late-life depression prevalence.

Wenger's findings together with the Eurodep studies and Kirby's research in Dublin all highlight the importance of community stability to the formation of support networks by older adults and the balance within these of neighbours, friends and family. These findings are of considerable relevance to the current study, whose starting-point was heightened rates of late-life depression in a community which, by definition, is a place where its oldest inhabitants are almost exclusively "incomers" – a "new town".

1.6.2.4 Special nature of new towns and an older adult cohort

The "new towns" have been described as "among the most striking developments in post-world war two Britain" (COI, 1972). The policy behind their creation was twofold; to effect gradual dispersal of industry and population from overcrowded cities and to "bring people and their means of livelihood together to new surroundings, where services and amenities....could be defined with reference to whole communities and placed at the

disposal of all....to provide opportunities for a full, satisfying and self-sufficient life" (COI, 1961). The remit of the Reith Committee on the development of "new towns" defined the objective of the inquiry as the establishment of "self-contained and balanced communities for working and living" (Ferguson, 1982). Glenrothes, the "new town" upon which this study focusses, was designated New Town status in June, 1948. Although its original purpose was to house coal-mining families, after the failure of the Rothes Colliery in 1962 the town became a growth point for diversified industry and "overspill" from Glasgow. Glenrothes was developed from the tiny hamlet of Woodside, a coaching stop on the Kirkcaldy to Cupar road in Fife. The original intention was that only 2000 acres of land be developed, with a planned population maximum of 35,000 envisaged. The population of Glenrothes at the time of this study was 50,667 (GLHCC, 2003). In an early history of the town (Wood, 1989), one of the original residents of Woodside, Miss Jane Farmer, describes the beginnings of Glenrothes: "some of the older folks wondered what was going to happen; would they be alright?...But it was going to bring benefits – modern houses, jobs....The homeliness was lost a bit, the atmosphere changed and the lifestyle became a bit quicker". Wood (1989) discussed the original Corporation's feelings of responsibility for fostering a community spirit. "The creation of a 'Community Spirit" in the town was a major concern in the early days, perhaps it still is one" (Wood, 1989).

1.6.3 Social and Community Integration

1.6.3.1 Community rootedness

Schneider (1986) provided the simplest objective definition of an individual's community rootedness as the length of residence in a certain community. "Community stability" as discussed by authors such as Kirby (2000) is simply another way of describing Schneider's simple view of "rootedness". Hummon (1992) highlighted the weakening influence mobility can have on local sentiment by disrupting social integration and reducing the personal meaning of the built environment. Examining the effects of length of residence, Hummon cited an earlier study by Rowles (1983) who analysed how long-term elderly residents of an Appalachian community experienced a sense of "insidedness" or "sense of home". "This sense of insidedness is at once physical, social, and autobiographical – of living within a known terrain; within an order of community life; within a landscape of remembered events" (Hummon, 1992). Dupuis and Thorns (1996) examined the meanings of "home" for older homeowners. From 53 in-depth interviews, they concluded that the meanings attached to "home" are not solely about material possessions, but are shaped by particular social and historical experiences of groups of individuals and families. This sense of "home" is described by Lin et al (1999) as a sense of "*belongingness* and general social identity", as derived from participation and involvement in community activities. Schneider's (1986) concept of "rootedness" adds the notion of time as an important variable contributing to such a "sense of belonging".

A more sophisticated definition of "rootedness" as a multi-dimensional psychological concept incorporates subjective reference to people's "sense of belonging, identity, and feelings about the place in which they live" (Moore, 1999). Links are appropriately drawn with attachment literature (Altman and Low, 1992). Moore (1999) examined different ways in which people felt they belonged to their local area, their city, and their country. The subjective nature of rootedness or sense of community belonging examined was clearly distinct from the more widely-studied construct of social support.

1.6.3.2 Belonging and Mental Health

The introduction of the concept of "belonging" to the simplest measure of community rootedness by time begins to imply its potential as a protective factor in terms of the mental health of older adults. Baumeister and Leary (1995) considered "belonging" to be a key concept in mental health, describing it as "a basic human motivation", reflecting Maslow's (1954) assertion of "belonging" as a basic human need. Hagerty (1995) described "sense of belonging" as "a unique mental health concept", differentiating it from more frequently discussed concepts such as loneliness and social support, and from quantitative measures of actual social interactions. It has been postulated as one element among many concepts that comprise social support processes (Hagerty, Williams, Coyne and Early, 1996). When "sense of belonging" is defined as "the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment" (Hagerty, Lynch-Sauer, Patusky et al., 1992) clear links can be seen with the promotion of "esteem support" (Cohen and Wills, 1985),

international policy initiatives of active ageing (WHO, 2002) and the concept of successful ageing (Rowe and Kahn, 1998; Baltes, 1993).

Hagerty et al. (1996) suggested that both valued involvement and a sense of "fitting in" are both vital characteristics to a "sense of belonging". Questions were incorporated relating to both these aspects in Moore's (1999) study exploring the concept of rootedness. Both Moore and Hagerty appear to give different labels to the same construct. Both authors draw upon Cowan's (1975) work on "psychological sense of community", rename it and claim it as their own. The loss or decline of psychological sense of community, characterised by Cowan (1975) as the "feeling of belonging, of being needed, of identification", has been associated with feelings of alienation, isolation and loneliness, the loss of local autonomy and personal involvement in one's community and perhaps most importantly, a growing inability to maintain a readily available, mutually supportive network of relationships (Glynn, 1981). The importance of reciprocity in older adult's social interaction discussed earlier is clearly reflected here in the importance of feeling valued in a community sense. Glynn's (1981) view parallels Lin et al.'s (1999) structural model which portrays "belongingness" as fundamental to the ability to form closer relationships and their associated protective function in relation to mental health.

Hagerty and Williams (1999) set out to examine the effects of sense of belonging, social support, loneliness and conflict on depression, and to describe the predictive value of sense of belonging for depression in the context of other interpersonal phenomena. Both

sense of belonging and loneliness demonstrated direct effects on depression and high conflict in relationships was associated with low sense of belonging. When path analysis was performed, perceived social support failed to display a statistically significant direct path to depression, but did however have significant direct paths to loneliness and sense of belonging. Such findings suggest that sense of belonging may be a more important concept relevant to depression than perceived social support. Contrasting with "social support", which refers to the perceived presence or absence of supportive relationships, sense of belonging is a richer construct, concerning a view of self "as integrated within an interpersonal system" (Hagerty and Williams, 1999). Such a view of self is clearly a complex psychological construct, involving cognitive, affective and behavioural elements, which merits greater research attention, particularly in relation to mental health.

1.7 Basis for current research

The social ageing literature suggests an increasing salience of socioemotional support in later life in the context of reducing size of "interpersonal systems". The potential mental health significance of social integration and sense of community belonging has been highlighted in relation to successful adaptation to the transitions frequently characterising late-life. Inter-community differences in late-life depression prevalence may reflect variations in levels of these same constructs. Identification of heightened levels of depression in a population of "incomers" all aged over 75 was the starting point for the current study, begging the question – does depression reflect subjective measures of

sense of community belonging and adequacy of socioemotional support in the oldest-old? The current study sets out to investigate the relationship between social integration, sense of community belonging, socioemotional support and depression in older adults over 75 years of age.

Although studies suggest a relationship between community rootedness or sense of belonging and depression in younger adults (Anant, 1967; Hagerty and Patusky,1995; Moore, 1999), no similar study has explicitly examined such a relationship in a community-dwelling older adult population.

1.8 AIM OF CURRENT INVESTIGATION

The principal aim of the study is to heighten understanding of the role of social integration and sense of community belonging in late life depression.

1.9 HYPOTHESES

1 It is hypothesised that those identified as depressed at their over-75's health check will report a lower sense of community belonging, greater feelings of loneliness and display lower levels of social integration than their non-depressed age-peers.

2 It is hypothesised that older adults identified as depressed at their over 75's health check will report less socioemotional support and will report their socioemotional support to be less adequate than their non-depressed age peers.

3 It is hypothesised that levels of social integration and sense of community belonging in older adults will be associated with levels of socioemotional support and the perceived adequacy of that support.

4 It is hypothesised that older people who report high levels of stress will be more likely to be depressed if they report inadequate social support and low levels of sense of community belonging.

2. METHOD

2.1 Design

2.1.1 Study design

An independent subjects cross-sectional design was used to compare a sample of older adults identified as depressed at their over 75's health check with a sample scoring well below the recommended cut-off score for depression on six self-report measures: The Geriatric Depression Scale, the Short Anxiety Screening Test, the Threatening Life Events Scale, an Index of Social Support Deficits, and the Significant Others Scale (for further details, see below). In addition, all participants were given a semi-structured interview relating to demographic characteristics, perceived health status, community participation, loneliness, and sense of belonging to their local community. Participants also gave their consent to the researcher having access to their over 75's health check notes to record details of actual physical health status.

2.2 Procedure

2.2.1 Ethical approval

Ethical approval for the study was granted by the Fife Health Board Research Ethics Committee and the acting area Medical Director (Fife Local Research Ethics Committee Reference number: 1030) on January 9th, 2003.

2.2.1.1 Ethical considerations

Appropriate care was given to consider the ethical issues raised in the context of the study. These included provision of informed consent, respect for participant confidentiality, appropriate collection and storage of data, credibility of potential results, and appropriate response to potential distress noted during or aroused by participation in the study.

2.2.1.2 Informed consent

Care was taken to ensure that all potential participants were adequately informed of the voluntary nature of participation, that a decision not to take part would not affect their treatment or medical care in any way, and that any information provided would be anonymous with confidentiality maintained at all times. Assurance was also given that once enrolled in the research study participants would be free to withdraw at any time, without having to give a reason. In an attempt to ensure competence to consent, only those individuals who scored above 6 on the Abbreviated Mental Test incorporated in their Over 75's health check were asked to consider participation. An information sheet was prepared for the study choosing an appropriate font size and print clarity (Appendix 2) together with a written consent form (Appendix 3). Signed consent forms were witnessed and dated and stored in a locked cabinet.

2.2.1.3 Collection and storage of data

In order to ensure confidentiality, each participant was assigned an identification number for the purposes of the study. Following this, all identifying features were removed from

the questionnaire responses. These numbers were then entered into the computer database. Completed consent forms and questionnaires were stored separately and in locked cabinets to ensure confidentiality and security.

2.2.1.4 Credibility of results

A minimum of 91 participants were calculated as being required for the study in order to achieve statistical power to demonstrate moderate effect sizes (ES) at the 0.8 level (Cohen, 1988).

2.2.1.5 Appropriate response to distress

Despite every attempt being made to minimise the potential for distress, the possibility that participants might experience some emotional distress in the context of the study was acknowledged. The researcher aimed to provide a sensitive interviewing manner aiming to alleviate distress wherever possible. It was made clear to all participants that the research interviews could be discontinued at any time at the participants request. Should the researcher consider that the participant required further support, direct referral pathways to Clinical Psychology were established with the District Nurses within both practices involved at the planning stage of research. Subject to the individual's consent, the District Nurse would be alerted to the researcher's concern.

2.2.2 Recruitment

Participants were recruited from two general practices in Fife, Glenrothes (a "new town") and Auchtermuchty (a rural community). An initial audit of over 75's health checks was carried out by the "new town" general practice (Glenrothes) for the period July 2001 to June 2002. All individuals who were identified (by the Health Check Royal College of General Practitioners recommended criteria) as "depressed" (GDS – 15 total score of 5 or above) were invited by the district nurses to participate in this study, together with a sample of those considered "non-depressed" (GDS-15 total score of 2 or below), matched for age, sex and living circumstances (ie. living alone or with others). Individuals identified as depressed over the same eleven month period with the same instrument in the rural community (Auchtermuchty and surrounding district) were also invited to participate together with a sample of non-depressed participants, matched for age, sex and living circumstances.

Demographic information including age, marital status, community of residence (environment), and years of education was recorded for all participants together with information recorded by the district nursing team relating to physical health. Characteristics of the study sample are presented in Table 3.1 (Section 3.2).

2.2.3 Inclusion criteria

All participants were required to be aged 75 years or over. To be included in the depressed group participants were required to have scored 5 or above on the Geriatric

Depression Scale (GDS-15) at their most recent over 75's health check. Those in the non-depressed group were required to have scored 2 or below on the Geriatric Depression Scale (GDS-15) at their most recent over 75's health check.

2.2.4 Exclusion criteria

Individuals showing evidence of cognitive impairment were excluded from the study. A score of 6 or below in the Abbreviated Mental Test incorporated in the over 75's Annual Health Check was regarded as indicative of cognitive impairment (as recommended by the Royal College of General Practitioners). Those in long-term nursing care were also excluded from the study.

2.3 PROTOCOL

The researcher met with the district nurse teams from two general practices, Glenrothes (North Glen) and Auchtermuchty, to describe the purpose and design of the study. Further meetings took place with a local public health practitioner, general practitioners from both practices, and the Glenrothes Local Healthcare Co-operative to raise awareness of the study and to answer any questions.

District Nurses in both practices then identified individuals scoring 5 or above and 2 or below on the GDS-15 within the context of their routine Over 75's health check.

The District Nurse conducting the routine Over 75's health check briefly described the study and offered the patient the study information sheet and patient consent form (Appendices 2 and 3). Names and contact details of those consenting to participate in the study were then forwarded to the researcher, with their permission.

Subsequent to receiving the older person's written consent to participate, the principal researcher offered him/her a home appointment for the semi-structured interview and administration of standardised measures as detailed below.

The interview began with a brief introduction by the researcher and an opportunity for the participant to ask any questions. After outlining the format of the appointment, the participant was reminded that all responses would be entirely confidential and that their name would not appear on any record forms. The researcher then commenced the semi-structured interview (Appendix 4), followed by the administration of the Geriatric Depression Scale (15-item version), Short Anxiety Screening Test, Social Supports Deficit Index, Threatening Life Events Scale, and the Significant Others Scale. This was completed in a single session, which varied in duration from 55 to 120 minutes, depending on the requirements of the participants. The researcher read all the research measures aloud for all participants and recorded their responses.

Each participant was thanked for their participation in the study and provided with the researcher's name and contact details should they wish to receive details of the study's conclusions.

All research measures used are displayed in full in Appendices 5 – 9.

2.4 Measures

2.4.1. Semi-structured Interview

A Semi-structured questionnaire was designed for use in this study. During the interview, standard sociodemographic information, age, marital status, years of education, and living circumstances, was collected.

Following the finding by Glynn (1981) that the perception of the need for a car in a community is related to "psychological sense of community", participants were asked whether they considered a car necessary to get around in their community, and whether they themselves could drive.

Since Glynn also found that number of neighbours identified by their first name was a strong predictor of community satisfaction, participants were also asked to identify as many of their adult neighbours by their first name as possible.

Particular questions were included to determine an individual's "rootedness/sense of belonging" to their community. A very simple objective measure of "rootedness" was used, as in Schneider (1986), by asking the length of time resident in the current area. "Sense of community belonging" was also examined, by the inclusion of the four statements used by Moore (1999) to determine "rootedness" to one's local area: "I have good friends in this area", "I can be myself in this area", "I feel part of what's going on in this area", and "I feel at home in this area". Participants were asked to rate their level of agreement with these statements on a five point scale, ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). Within the local area level of her study Moore found the items to be significantly correlated. Scores were totalled for the four items as in Moore (1999) and recorded separately for each statement for more detailed analysis.

Feelings of loneliness were explored using a single question as in the Gospel Oak study of older adults (Prince et al. 1998): "Do you feel lonely?" with the response options "Never, hardly ever, occasionally, a lot, all the time".

Community participation/social functioning was measured by response to questioning regarding membership of and attendance at community groups, churches, clubs etc. as in Hagerty et al. (1996) and with older adults by Prince et al. (1998).

Subjective appraisal of health was ascertained by a single question: "Do you consider yourself to be currently healthy or unhealthy?" as used by Laidlaw, Quinn, McElhinney et al. on behalf of the WHOQOL-OLD Group (2003).

The interview ended with an open question to each participant: "What do you think makes a place a good place to grow old in?" Verbatim Responses were recorded in writing by the researcher for future qualitative analysis.

Five pilot interviews were conducted with adults over 75 years of age (mean age = 82.75 years; SD = 5.85; range 76-89 years). It was determined that the semi-structured interview could be easily administered in 20 minutes. No difficulties were reported in understanding the wording of questions.

2.4.2 **Geriatric Depression Scale** (GDS-15; Sheik and Yesavage, 1986)

The GDS-15 correlates well with its parent scale (GDS-30; Yesavage et al., 1983) which was designed specifically for rating depression in older adults. It was designed as a self- or interview-administered instrument and consists of 15 questions with a simple yes/no response format addressing various depressive symptoms[1]. It has been validated for detecting depression among the oldest-old people (over 85) living in the community (de Craen et al., 2003). Various thresholds for screening have been recommended, with a score of 5 or above recommended for use at the over-75's health check (Williams and

[1] Throughout this study when participants are referred to as depressed what is referred to is the existence of depressive symptoms

Wallace, 1993). With the use of this threshold the scale has demonstrated 78% sensitivity and 82% specificity in older primary care attenders (D'Ath et al., 1994) and 60% sensitivity and 89.2% specificity in a community-living older adult population (Arthur et al., 1999).

2.4.3 **Short Anxiety Screening Test** (SAST; Sinoff et al., 1999)

This instrument was developed to detect anxiety in older adults on the criteria defined by DSM-IV (American Psychiatric Association, 1994). It takes ten to fifteen minutes to administer and has ten questions graded from 1 to 4. A total score is calculated by the sum of the grades of these questions. A score of ≥ 24 is recommended by the authors, on the basis of previous research, as the best cut-off point for the diagnosis of anxiety.

With the use of this threshold the scale has demonstrated 75.4 per cent sensitivity and 78.7 per cent specificity in adults over 70 years old (Sinoff et al., 1999).

2.4.4 **Threatening Life Events Scale** (TLES; Brugha and Conroy, 1985)

This scale was developed specifically for use with older adults, with 9 serious but common events experienced during late adulthood included :

1) Death of a parent,
2) Death of a spouse or child
3) Death of another relative
4) Onset of serious illness/ accident affecting a relative
5) Marital separation

6) Ending of a friendship/relationship

7) Serious problem with a close friend, neighbour or relative

8) Financial crisis

9) Theft or loss of an item of personal value.

Brugha and Conroy (1985) compared the TLES with the Brown and Harris (1978) semi-structured interview (the Life Events and Difficulties Schedule). The 12 categories in the original study accounted for 80 per cent of those events of difficulties that were rated marked or moderate in long term threat. The current study followed the example of the Gospel Oak Project (Prince et al., 1997) and incorporated the use of the 9 item version which excluded the 3 items which would only be of relevance to a younger population.

2.4.5 **Index of Social Support Deficits** (James and Davies, 1987)

This measure was developed by Cervilla and Prince (1997) for use in the Gospel Oak community study of older adults. Six social support deficits are measured:

1) Living alone

2) Seeing a relative less than once per week

3) Having no supportive neighbours

4) Having one or less supportive friends

5) Experiencing upset or bother in a relationship with a child

6) Experiencing dissatisfaction with support received from friends.

The measure is very straightforward in format, since the particular deficit is simply ticked if it applies to the participant.

This measure seemed particularly useful to the researcher as the aspects explored by this index are in keeping with Bowling's (1994) dimensions of social support: frequency of support, extent of support, appreciation of adequacy of support. The measure also covers support from family as well as friends and neighbours.

2.4.6 **The Significant Others Scale** (SOS; Power, Champion and Aris, 1988)

The SOS is a measure developed to assess the quality of support provided by other people in the social network. It is used to elicit information on the perceived form and function of social support, in actuality and in an ideal sense, for a range of key relationships in an individual's life. The form, or "structure", of support is assessed by considering a number of role (significant other) relationships. The short SOS, used in this study, was developed by Lam and Power (1991) for use with older adults. It is set out in questionnaire format and is recommended by the authors for studies in which other measures are to be administered. The short version is based on four functions or items from the full version. The functions are:

- 'Can you trust, talk to frankly and share feelings with x?' (emotional support)
- 'Can you lean on and turn to x in times of difficulty?' (emotional support)
- 'Does x give you practical help?' (practical support)
- 'Can you spend time with x socially?' (practical support)

Six potential role relationships are examined, namely: spouse, sibling, offspring, best friend and two other important persons whom the participant is required to specify. Once

this is done, the measure can be completed entirely by the participant or administered as an interview, if necessary. In the current study, the measure was always administered as an interview. Participants are asked to rate how much each particular item applies to the role relationship on a five-point scale. The higher the score the greater the frequency of social support. They are also asked to rate their ideal levels of support for the same role relationships on the same five-point scale. The scale yields an ideal and a perceived emotional and practical support score for each relationship. A measure of discrepancy between the actual and the ideal score for each relationship can then be derived, together with a total emotional discrepancy (ideal emotional support minus actual emotional support) and a total practical discrepancy score (ideal practical support minus actual practical support) for each participant. The main author of the measure (Prof. M.J.Power) provided an SPSS syntax file to the researcher for the scoring of this measure. The measure can be completed in five to ten minutes.

Previous research has shown the scale to demonstrate good reliability and validity, with six-month test-retest reliability scores ranging from 0.73 to 0.83 for the main summary support variables in an adult sample. Criterion group validity has been shown by the fact that the scale successfully distinguished depressed from symptom-free controls (Power et al., 1988).

2.5 Operational framework for testing hypotheses

2.5.1 Hypothesis One

A detailed examination of participants' responses to particular items incorporated within a semi-structured interview will determine rejection or acceptance of this hypothesis. Using independent samples tests the depressed and non-depressed groups will be compared on sense of community belonging (SOCB) scores, levels of reported loneliness, and the results of specific measures of social integration (SI). The specific measures of SI upon which the two groups will be compared will be:

1 Length of residence

2 Perceived requirement of a car

3 Number of groups regularly attended

4 Number of neighbours known by their first name

5 Number of social support deficits.

Acceptance of the experimental hypothesis would require a statistically significant difference to be demonstrated (at the 0.05 level) between the groups, with the depressed group scoring significantly lower on SOCB, higher on loneliness and lower on any of the specific measures of SI.

2.5.2 Hypothesis Two

A detailed examination of participants' responses to the Significant Others Scale (SOS) will determine rejection or acceptance of this hypothesis. Using independent samples tests, depressed and non-depressed groups will be compared on levels of socioemotional

support and perceived adequacy of that support as assessed by Significant Others Scale scores. Acceptance of the experimental hypothesis will require a statistically significant difference at the 0.05 level to be found between groups, with the depressed group reporting significantly less socioemotional support than the non- depressed group and a greater discrepancy between their ideal level of socioemotional support and the actual level of support they report receiving.

2.5.3 Hypothesis Three

Measurement of the relevant variables will be as noted for Hypotheses One and Two. The degree of relationship between the variables will be measured using appropriate tests of correlation (Pearson's Product Moment Correlation Coefficient or Spearman's Rho). Significance will be accepted at the 0.05 level. Acceptance of the experimental hypothesis will require a statistically significant positive correlation to be demonstrated between any of the identified measures of social integration and socioemotional support and its perceived adequacy, together with a significant positive correlation between Sense of Community Belonging scores and the measures of emotional support.

2.5.4 Hypothesis Four

For the purposes of testing this hypothesis two measures of participant stress will be used: the number of medical problems recorded at the Over 75's health check and the total number of life events recorded over the past year (as assessed by the Threatening Life Events Scale). Adequacy of social support will be assessed by means of the

Significant Others Scale and sense of community belonging by scores on the Sense of Community Belonging Scale. In order to test for the hypothesised interaction between personal resources (sense of community belonging and "adequate" social support) and potential stressors (medical problems and life events) separate logistic regression analyses will be conducted for each stressor with depression status as the dependent variable. Acceptance of the experimental hypothesis will require a significant interaction to be demonstrated at the 0.05 level between resource measures and stress measures such that the presence of the resource and the presence of stress interact to lower the likelihood of depression categorisation.

3. RESULTS

3.1 Statistical analysis of results

The data collected was analysed using the Statistical Package for the Social Sciences (SPSS), PC version, release 10.1.

The Kolmogorov-Smirnov Goodness of Fit test determined that the distribution of scores on several measures differed significantly from a normal distribution. Extreme outliers were identified in some of the sub-sets of data and are reported as identified throughout. Analyses were conducted excluding outliers. Any transformation of affected datasets is noted throughout and non-parametric tests used where appropriate. Note is made throughout if assumptions for the use of parametric tests are violated. On these occasions appeal is made to the robustness of the particular parametric tests involved (Clark-Carter, 2001).

Only two participants had an incomplete dataset (one in the depressed group, one in the non-depressed group). In the non-depressed case, missing data related to number of medical problems as this information was not provided by the district nurse. In the depressed case, the participant declined to complete one of the questionnaires, the Significant Others Scale. Missing values were excluded on a case-wise basis.

Statistical analysis was carried out using descriptive statistics, independent samples t-tests and Mann-Whitney tests, Pearson and Spearman correlational analyses, analysis of variance and logistic regression. Statistical significance (alpha) was accepted at the 0.05 level. On occasions where multiple independent samples tests were conducted significance level was adjusted to correct for inflated family-wise alpha using the Bonferroni method.

3.2 Participant demographics

Sixty-three participants were recruited to the study: 28 individuals identified as depressed (10 men and 18 women) and 35 identified as non-depressed (11 men and 24 women). A further seven people were identified as depressed by district nurses but declined to participate. Characteristics of the study sample are presented in Table 3.1. The mean GDS-15 score for the depressed group was 7.21 (SD = 2.15) with a median score of 6.5 (range = 5 to 11). Of the depressed group 13 participants (46.4%) scored 8 or above, indicating moderate to severe depressive symptomatology. The mean GDS-15 score for the non-depressed group was 1.18 (SD = 0.87) with a median score of 1.0 (range = 0 to 2). Mann-Whitney independent samples tests showed the two groups to differ significantly in depressive symptomatology ($z = -6.88$; $p < 0.01$, 2-tailed).

	Depressed (n = 28)	Non-depressed (n = 35)	t/z	χ^2
Age in years				
Mean (SD)	82.43 (5.06)	82.03 (4.48)	0.33	
Gender				
Male	10 (35.7%)	11 (31.4%)		0.13
Female	18 (64.3%)	24 (68.6%)		
Marital status				
Single	2 (7.1%)	0		
Married	10 (35.7%)	13 (44.8%)		2.6
Divorced/separated	1 (3.6%)	1 (3.5%)		
Widowed	15 (53.6%)	15 (51.7%)		
Living circumstances				
Alone	19 (67.9%)	22 (62.9%)		0.17
Not alone	9 (32.1%)	13 (37.1%)		
Environment				
New Town	20 (71.4%)	27 (77.1%)		0.27
Rural	8 (28.6%)	8 (22.9%)		
Years of education				
Mean (SD)	9.29 (0.81)	9.03 (0.62)	1.43	
Car driver				
Yes	3 (10.7%)	8 (22.9%)		1.59
No	25 (89.3%)	27 (77.1%)		
Medical problems				
Mean (SD)	2.89 (1.71)	2.26 (1.33)	1.63	
Perceived health				
Healthy	15 (53.6%)	27 (77.1%)		3.89*
Unhealthy	13 (46.4%)	8 (22.9%)		
GDS – 15 score				
Mean (SD)	7.21 (2.15)	1.18 (0.87)		
Median	6.5	1.0	-6.88**	
Range	5 to 11	0 to 2		
Anxiety (SAST)				
Mean (SD)	20.50 (5.29)	16.66 (3.88)		
Median	20.5	16.0	-2.99**	
Range	11 to 32	10 to 27		
Loneliness				
Mean (SD)	1.79 (1.26)	0.74 (1.09)		
Median	2	0	-3.29**	
Range	0 to 4	0 to 4		

* $p < 0.05$ ** $p < 0.01$

Table 3.1: Characteristics of sample

Influence of other factors on depression

Age and gender

An independent samples t-test showed that there was no significant difference in age between participants in the depressed group and non-depressed groups ($t(61) = 0.331$, NS). Chi-square analysis revealed a comparable gender distribution between the depressed and non-depressed groups ($\chi^2 = 0.129$, $df = 1$; NS).

Years of education

An independent samples t-test showed that there was no significant difference in the number of years of education of participants in the depressed and non-depressed groups ($t(61) = 1.43$, NS).

Living circumstances

Chi square analysis showed that there was no significant difference between the depressed and non-depressed groups in terms of distribution of living circumstance (living alone or living with others) ($\chi^2 = 0.171$, $df = 1$; NS), community of residence (environment) ($\chi^2 = 0.268$, $df = 1$; NS), or marital status ($\chi^2 = 2.646$, $df = 1$; NS). A more detailed multivariate analysis in relation to community of residence, depression grouping and measures of social integration is presented below (3.3.4)

Perceived Health

A Pearson chi-square analysis was completed to identify whether there was any relationship between perceived health (healthy or unhealthy) and depression grouping. A relationship was found between perceived health and depression grouping with depressed individuals perceiving themselves as less healthy than their non-depressed age peers (χ^2 = 3.89; df = 1; $p < 0.05$).

Comorbid psychological distress

The distribution of both anxiety scores and feelings of loneliness scores differed significantly from normal. Independent samples Mann-Whitney tests demonstrated significantly higher levels of anxiety ($z = -2.99$; $p < 0.01$) and loneliness ($z = -3.29$; $p < 0.01$) in the depressed than the non-depressed group.

Deprivation category

Deprivation categories for the whole of Scotland range from 1 (the most affluent postcode sectors) to 7 (the most deprived) (Carstairs and Morris, 1991). All study participants were categorised by postcode into categories 3 (20.4%) and 4 (79.6%).

Chi square analysis showed that there was no significant difference between depressed and non-depressed groups in terms of distribution of relative deprivation category (χ^2 =0.006, df = 1; NS).

3.3 Hypothesis 1

It is hypothesised that those identified as depressed at their over-75's health check will report a lower sense of community belonging (as assessed by scores on the sense of community belonging scale), greater feelings of loneliness and display lower levels of social integration (as assessed by length of residence, perceived requirement of a car, group attendance, contact with neighbours and the total number of social support deficits on the Social Support Deficits Index) than their non-depressed age-peers.

3.3.1 Measures of sense of community belonging, loneliness and social integration

As in Moore (1999) the four individual questions in the Sense of Community Belonging Scale correlated significantly with the total score (Table 3.2). The total Sense of Community Belonging (SOCB) score is therefore used throughout the analysis. Descriptive statistics for SOCB are detailed in Table 3.3.

Although descriptive statistics are presented for loneliness in Table 3.1, they are repeated in Table 3.3 for ease of reading in relation to Hypothesis 1. Descriptive statistics for all measures of social integration are presented in Table 3.3.

Question	Total Belonging Score
Good friends in the area	0.728**
Can be myself in the area	0.312*
Feel part of what's going on in the area	0.801**
Feel at home in the area	0.754**

* $p < 0.05$
** $p < 0.01$

Table 3.2: Sense of Community Belonging Scale: Spearman's rho correlation coefficients for individual questions and total score

Measure	Depressed (n = 28)		Non-depressed (n = 35)		t / z	
	Mean (SD)	Median (Range)	Mean (SD)	Median		
Sense of community belonging score	10.29 (2.58)	11.0 (5 to 15)	13.37 (2.25)	14.0 (8 to 16)	z = -4.26**	
Loneliness	1.79 (1.26)	2.0 (0 to 4)	0.74 (1.09)	0.0 (0 to 4)	z = -3.29**	
Years of residence	30.39 (23.48)	26.5 2 to 87	29.73 (23.85)	20.0 1.5 to 85	t = 0.102	
Number of groups regularly attended	0.57 (1.29)	0 (0 to 6)	1.06 (1.19)	1.0 (0 to 5)	z = -2.88**	
Number of neighbours known by first name	5.04 (3.79)	4.5 (0 to 14)	9.14 (6.24)	7.0 (0 to 24)	t = 3.68**	
Social Support Deficits	2.32 (1.44)	2.0 (0 to 6)	1.2 (1.05)	1.0 (0 to 4)	z = -3.1**	
Perceived need for car	**Yes**	**No**	**Yes**	**No**	χ^2 **(df=1)**	**P**
	20 (71.4%)	8 (28.6%)	19 (54.3%)	16 (45.7%)	1.94	0.16

*** p < 0.05**
**** p < 0.01**

Table 3.3: Social integration measures: Descriptive statistics and results of independent samples tests conducted between depressed and non-depressed groups.

Kolmogorov-Smirnov and Shapiro-Wilk analysis was carried out on each data set to examine normality of distribution (Appendix 10). Despite attempts to transform the data by logarithmic and square root transformations the distribution of scores on 3 of the measures continued to differ significantly from normal: SOCB, total number of groups attended, and total number of social support deficits. Due to the non-normal distribution of scores, non-parametric independent samples Mann-Whitney tests were conducted to compare depressed and non-depressed groups on these measures. Logarithmic transformation of "years in present community" resulted in a normal distribution of scores on this measure of social integration. After removal of the one outlier an independent samples t-test was conducted between groups for this measure. Logarithmic transformation of "number of named neighbours" resulted in a normal distribution of scores on this measure. After excluding the one outlier an independent samples t-test was conducted between depressed and non-depressed groups for this measure.

Compared with the depressed group, the non-depressed group reported significantly greater sense of community belonging ($z = -4.26$; $p < 0.01$), less frequent feelings of loneliness ($z = -3.29$; $p < 0.01$), attended significantly more community groups on a regular basis ($z = -2.88$; $p < 0.01$), knew significantly more of their neighbours by their first name ($t(60) = 3.68$; $p < 0.01$), and reported a significantly lower number of social support deficits ($z = -3.1$; $p < 0.01$). No significant difference was found between groups in length of residence in present community ($t(60) = 0.102$; NS), neither was a significant

association demonstrated between depression grouping and perceived need for a car (χ^2 = 1.94; df = 1; NS). Applying the Bonferroni method for multiple comparisons, significance was set for seven comparisons at 0.007. All between-groups differences retained significance at the 0.007 level.

In summary, the null hypothesis can be rejected at this stage. The proposed difference between groups in sense of community belonging and loneliness is supported. Two of the measures proposed to assess social integration (length of residence and perceived need for a car) were not found to differentiate depressed and non-depressed groups. However, groups were found to differ on all other measures of social integration as hypothesised.

Having identified certain measures as differentiating the depressed and non-depressed groups, a logistic regression analysis was conducted in order to determine the relative predictive value of the measures.

3.3.2 Selection of predictor variables for regression analysis

On the basis of initial analyses, it was determined to exclude years of residence and perceived need for a car from more detailed analysis since these variables did not contribute to any significant degree to depression categorisation. The five remaining measures of social integration were then considered for incorporation into a logistic regression analysis.

3.3.2.1 Social Support Deficits Index (SSDI)

Descriptive statistics relating to the SSDI are detailed in Table 3.4. The Pearson chi-square statistic was used to determine the association between each social support deficit

and depression grouping. No significant association was found between depression grouping and living alone ($\chi^2 = 0.097$; df = 1; NS), nor between depression grouping and either of the deficits relating to family contact: seeing a relative less than once a week ($\chi^2 = 2.165$; df = 1; NS) and having upset or bother with one of their children ($\chi^2 = 1.359$; df = 1; NS).

Although almost 90% (88.9%; n = 56) of the whole sample (n = 63) expressed satisfaction with the support they received from friends, 6 of the 7 people who were dissatisfied were in the depressed group. Over 80% of the total sample (85.7%; n = 54) considered themselves to have supportive neighbours, but 8 of the 9 who did not were in the depressed group. Almost 70% (68.3%; n = 43) of those interviewed reported having more than one supportive friend; however, 13 of the 20 who did not were in the depressed group.

Significant associations were found between depression grouping and those deficits relating to neighbours and friends: having no supportive neighbours ($\chi^2 = 7.128$; df = 1; $p < 0.01$), having one or less supportive friends ($\chi^2 = 4.285$; df = 1; $p < 0.05$), and being dissatisfied with the support they received from friends ($\chi^2 = 4.277$; df = 1; $p < 0.05$). With the Bonferroni method setting significance at 0.008, only the reported presence of supportive neighbours continued to achieve statistical significance.

Deficit	Depressed	Non-depressed	χ^2 (df=1)	P
Live alone				
Yes	19 (67.9%)	22 (62.9%)	0.097	0.756
No	9 (32.1%)	13 (37.1%)		
See relative less than once a week				
Yes	9 (32.1%)	5 (14.3%)	2.165	0.141
No	19 (67.9%)	30 (85.7%)		
No supportive neighbours				
Yes	8 (28.6%)	1 (2.9%)	7.128	0.007**
No	20 (71.4%)	34 (97.1%)		
1 or less supportive friends				
Yes	13 (46.4%)	7 (20%)	4.285	0.038*
No	15 (53.6%)	28 (80%)		
Bother with a child				
Yes	9 (32.1%)	6 (17.1%)	1.359	0.244
No	19 (67.9%)	29 (82.9%)		
Dissatisfied with support from friends				
Yes	6 (21.4%)	1 (2.9%)	4.277	0.039*
No	22 (78.6%)	34 (97.1%)		

*** $p < 0.05$ ** $p < 0.01$**

Table 3.4: Social Support Deficits

The main theoretical basis for inclusion of the Social Supports Deficits Index (SSDI) as a measure of social integration was its inclusion of measurement of family involvement. The above analysis suggests that its significance for late-life depression may lie instead in its measurement of contact with friends and neighbours. Since other measures were included within the interview to cover these aspects, consideration was given to

excluding SSDS from further analysis. Friendship was felt to be adequately covered by the first question of the community belonging measure (I have good friends in the area) and contact with neighbours was adequately covered by the recorded number of neighbours named by their first name. Using Spearman's rho correlations, SSDI scores, "number of named neighbours" and "total sense of belonging" scores were indeed all found to be significantly correlated (Table 3.5). On both theoretical and statistical grounds it was therefore determined to exclude SSDI from the proposed regression analysis.

Correlations

		Number of named neighbours	Total Belonging Score	Number of Groups regularly attended	Number of Social Support Deficits	Feelings of Loneliness
Number of named neighbours	Correlation Coeffi	1.000	.459**	.304*	-.470**	-.144
	Sig. (2-tailed)	.	.000	.015	.000	.261
	N	63	63	63	63	63
Total Belonging Sc	Correlation Coeffi	.459**	1.000	.218	-.546**	-.519**
	Sig. (2-tailed)	.000	.	.086	.000	.000
	N	63	63	63	63	63
Number of Groups regularly attended	Correlation Coeffi	.304*	.218	1.000	-.088	.066
	Sig. (2-tailed)	.015	.086	.	.492	.608
	N	63	63	63	63	63
Number of Social Support Deficits	Correlation Coeffi	-.470**	-.546**	-.088	1.000	.354**
	Sig. (2-tailed)	.000	.000	.492	.	.004
	N	63	63	63	63	63
Feelings of Lonelir	Correlation Coeffi	-.144	-.519**	.066	.354**	1.000
	Sig. (2-tailed)	.261	.000	.608	.004	.
	N	63	63	63	63	63

**.Correlation is significant at the .01 level (2-tailed).

*.Correlation is significant at the .05 level (2-tailed).

Table 3.5: Association between total social support deficits, number of named neighbours, number of groups regularly attended, sense of community belonging score and loneliness - Spearman's rho correlation coefficients.

3.3.2.2 Sense of community belonging

Following Baumeister and Leary's (1995) assertion of sense of belonging as a fundamental human motivation and Hagerty and Williams' (1999) support for this position with younger adults, there are good theoretical grounds for proposing causal priority to "sense of community belonging" (SOCB). On this basis it was chosen as a predictor variable for inclusion in a regression analysis. The inclusion of elements of valued fit (feeling part of what's going on in the area), active involvement (having good friends in the area) and comfort (feeling at home and being able to be myself in the area) within the total sense of community belonging score also supported its choice as a predictor variable. Its inclusion was also supported on statistical grounds, the non-depressed group reporting significantly higher total SOCB scores than the depressed group (as described above).

3.3.2.3 Named neighbours

Number of neighbours known by their first name ("named neighbours" (NN)) was incorporated as a measure of social integration on the basis of its implied active involvement in the *local* community (neighbourhood) taking into consideration the heightened salience of local neighbourhood context in the oldest-old. Supported by its statistical significance in differentiating the two groups, depressed and non-depressed, NN was selected as a predictor variable for inclusion in logistic regression analysis. Despite a clear potential here for collinearity with SOCB, it was felt that knowing

neighbours by their first name would not necessarily equate with their being "good friends" as assessed by the SOCB.

3.3.2.4 Regular group attendance

Number of groups regularly attended ("groups") was incorporated as a measure of social integration on the basis of its implied active involvement in the *wider* community as opposed to *local* community involvement (assessed by NN) or perceived involvement as measured by SOCB. On this basis and supported by the significant difference between groups on this measure as reported above, "groups" was selected as a further predictor variable for inclusion in logistic regression analysis.

3.3.2.5 Loneliness

It was determined to examine the predictive ability of loneliness in relation to depression categorisation, considering it as a measure of discrepancy between a person's socioemotional needs and their social ability (Peplau and Perlman, 1982) and supported by the literature highlighting the important role of socioemotional support in relation to depression in older people. Although the two subjective measures of loneliness and community belonging were found to be negatively correlated, loneliness was not significantly correlated with either of the objective measures of social integration (NN and "groups") (Table 3.5) nor on a point-biserial correlation with living alone ($r_{pb} = 0.18$; NS). The depressed group also reported significantly more feelings of loneliness than the

non-depressed group. Loneliness was therefore retained as a predictor variable for the logistic regression model on both theoretical and statistical grounds.

3.3.3 Logistic regression I

A direct logistic regression analysis was performed on depression status as outcome and four predictors: Sense of community belonging, number of named neighbours, number of groups regularly attended and feelings of loneliness.

A test of the full model with all four predictors against a constant-only model was statistically reliable, χ^2 (4, n = 63) = 27.46, p < 0.0005. This model accounted for between 35.3% and 47.3% of the variance in depression status, with 80% of non-depressed participants and 71.4% of depressed participants successfully predicted. Overall, 76.2% of predictions were accurate. Table 3.6 gives the coefficients, the Wald statistic and associated degrees of freedom and probability values for each of the predictor variables. This shows that of the four predictor variables only sense of community belonging reliably predicted depression status.

Variables in the Equation

								95.0% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	NEIGH	-.13	.08	2.54	1	.111	.87	.74	1.03
	BELONG	-.32	.15	4.36	1	.037	.73	.54	.98
	REGGROUP	-.30	.27	1.22	1	.269	.74	.44	1.26
	LONELY	.59	.33	3.23	1	.072	1.81	.95	3.45
	Constant	4.00	1.88	4.50	1	.034	54.48		

a. Variable(s) entered on step 1: NEIGH, BELONG, REGGROUP, LONELY.

Table 3.6: Logistic regression on depression status as outcome for total sample (n = 63) with four predictor variables.

3.3.4 Post-hoc analysis – Community of residence

The theoretical underpinning of the study suggested that sense of belonging, loneliness and social integration would prove to be important factors in relation to depression regardless of community of residence. However, examination of the data suggested that community of residence might have been exerting an influence on two of these measures, SOCB and loneliness (see Table 3.7).

	Number of named neighbours	Total Belonging Score	Number of Groups regularly attended	Feelings of Loneliness
Mann-Whitney U	359.500	188.000	364.500	268.000
Wilcoxon W	1487.500	1316.000	500.500	404.000
Z	-.262	-2.989	-.199	-1.840
Asymp. Sig. (2-tailed)	.793	.003	.842	.066

Table 3.7: Independent samples Mann-Whitney tests with community of residence as grouping variable and proposed predictor variables as independent variables.

In both community samples the non-depressed groups demonstrated higher SOCB scores (new town: $t(45) = 5.63$; $p < 0.01$; rural: $t(14) = 2.47$; $p = 0.027$; $p < 0.05$).

Independent samples Mann-Whitney tests demonstrated significant differences in the new town sample between depressed and non-depressed groups on feelings of loneliness with depressed participants reporting greater feelings of loneliness ($z = -2.99$; $p < 0.01$). Although the depressed group in the rural sample reported greater feelings of loneliness the difference did not achieve statistical significance ($z = -1.91$; $p = 0.056$; NS).

Despite the limitations of the rural sample size, it was considered prudent at this stage and prior to logistic regression analysis to test for possible main effects of community of residence on the measures incorporated as predictor variables in the earlier logistic regression model. Independent sample Mann-Whitney tests showed the rural group to have significantly higher total scores on the sense of belonging scale than the new town group ($z = -2.99$; $p < 0.01$).

Acknowledging violation of assumptions of normality, but appealing to the robustness of the F-test (Clark-Carter, 2001), a 2-way analysis of variance was conducted to investigate the main effects of depression group and community of residence on the measures proposed as predictor variables, (SOCB, NN, "groups", and "loneliness") and the presence of any interactions. Multicollinearity of dependent variables was checked as recommended by Tabachnick and Fidell (2001) and none of the correlation coefficients for any pair of dependent variables exceeded 0.52.

Main effects of depression grouping were evident for 3 out of the 4 measures: Sense of community belonging ($F(1,60) = 36.49$, $p < 0.001$), "named neighbours" ($F(1,60) = 9.02$, $p < 0.01$), and loneliness ($F(1,60) = 18.31$, $p < 0.001$). No significant difference was found in relation to groups regularly attended. Main effects of community of residence were evident for two of the measures proposed: Sense of community belonging ($F(1,60) = 19.04$, $p < 0.001$) (Figure 4) and loneliness ($F(1,60) = 5.64$, $p < 0.05$) (Figure 5). No significant difference was found in relation to the number of named neighbours nor to the

number of groups attended. No significant interactions were found between depression grouping and community of residence for any of the 4 measures: SOCB ($F(1, 59) = 2.3$; $p = 0.135$; NS), NN ($F(1, 59) = 0.91$; $p = 0.34$; NS), groups ($F(1,59) = 2.73$, $p = 0.10$; NS), and loneliness ($F(1,59) = 0.19$; $p = 0.67$; NS).

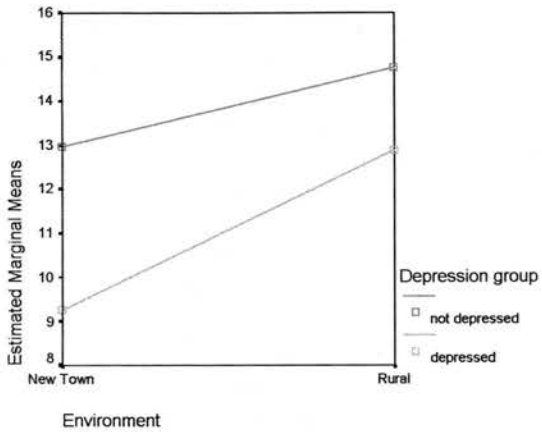

Figure 4:Estimated marginal means for total belonging scores

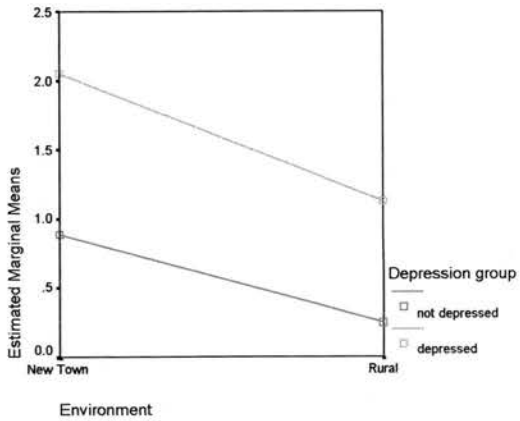

Figure 5: Estimated marginal means for loneliness scores

3.3.5 Logistic regression II

In view of the main effect of community of residence and the low numbers of participants from the rural community it was determined, for exploratory purposes, to test the model excluding the rural participants, reducing the sample size to 47. It was acknowledged that any conclusions drawn would be limited by the reduced sample size.

A direct logistic regression analysis was performed on depression status as outcome and four predictors: sense of community belonging, number of named neighbours, number of groups regularly attended, and feelings of loneliness. A test of the full model with all four predictors against a constant-only model was statistically reliable, χ^2 (4, n = 47) = 29.89, $p < .001$. This model accounted for between 47.1% and 63.2% of the variance in depression status, with 81.5% of the non-depressed participants and 80% of the depressed participants successfully predicted. Overall 80.9% of predictions were accurate. Table 3.8 gives the coefficients, the Wald statistic and associated degrees of freedom and probability values for each of the predictor variables. This shows that of the four proposed predictor variables, total sense of community belonging score reliably predicted depression status.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	NEIGH	-.06	.12	.23	1	.635	.95	.75	1.19
	BELONG	-.55	.24	5.23	1	.022	.57	.36	.92
	REGGROUP	-1.13	.71	2.50	1	.114	.32	.08	1.31
	LONELY	.68	.44	2.40	1	.122	1.97	.83	4.66
	Constant	5.98	2.62	5.21	1	.022	395.64		

a. Variable(s) entered on step 1: NEIGH, BELONG, REGGROUP, LONELY.

Table 3.8: Logistic regression II: Coefficients, Wald statistic, degrees of freedom and probability values for each of the predictor variables.

In summary, the proposed difference between depressed and non-depressed groups in sense of community belonging and loneliness was supported. However, the predictive effect of loneliness for depression status was neither significant in a model derived from

pooled data from all participants nor in one derived from new town data alone, which incorporated sense of community belonging as a predictor variable. Certain measures, such as length of residence and perceived need for a car which are highlighted in the literature as assessing social integration were not found to differentiate depressed and non-depressed groups. Other measures of social integration were found to differentiate groups in independent group comparisons, but did not survive as significant predictor variables in any of the logistic regression analyses. The null hypothesis is therefore rejected and the experimental hypothesis partially supported by the findings.

Post hoc analysis suggested that community of residence was a significant factor in relation to depression in this oldest-old sample, though limitations of sample size preclude any firm conclusions or more detailed analysis. Within the "new town" sample alone total scores on the sense of community belonging scale were reliably predictive of depression category.

3.3.6 Estimates of power

In an attempt to estimate power with the resources available with SPSS a multivariate ANOVA was conducted employing the same variables as those incorporated within the two regression analyses conducted in relation to Hypothesis 1 (Tables 3.9 and 3.10). Eta square values and observed power is provided for each of the variables incorporated in the models.

Dependent Variable	F	P	Eta squared	Observed power
Named neighbours	9.365	.003	.133	.854
Sense of community belonging	25.676	.000	.296	.999
No. of groups attended	2.414	.125	.038	.334
Feelings of loneliness	12.374	.001	.169	.933

Table 3.9 Power estimates for Logistic regression I based on MANOVA

Dependent Variable	F	P	Eta squared	Observed power
Named neighbours	7.743	.008	.147	.777
Sense of community belonging	31.719	.000	.413	1.0
No. of groups attended	6.593	.014	.128	.710
Feelings of loneliness	10.623	.002	.191	.890

Table 3.10 Power estimates for Logistic regression II based on MANOVA (excluding rural participants' data)

3.3 Hypothesis 2

It is hypothesised that older adults identified as depressed at their over 75's health check will report less socioemotional support and will report their socioemotional support to be less adequate than their non-depressed age peers (as measured by the Significant Others Scale).

Descriptive statistics relating to perceived social support and ideal social support (practical and emotional) as measured by the Significant Others Scale (SOS) are displayed in Table 3.11. Descriptive statistics relating to the number of roles (significant others) identified and discrepancy scores for practical and emotional support are detailed in Table 3.12. One participant in the depressed group was excluded as she failed to complete the SOS reporting that, in the context of current family difficulties, she would find the process "too distressing".

Overall, 3.2 per cent (n = 2) of the participants reported that they had too much support (ie. the overall actual support score was greater than the ideal support score); 8.1 per cent (n = 5) reported that they had adequate support (ie. the overall actual score was equal to the ideal score); and the remaining 88.7 per cent reported that they had less support than they ideally wished for. Discrepancy scores were calculated by subtracting the actual support from the ideal support on an item-by-item basis.

	Depressed n = 28		Non-depressed n = 35			
	Mean	SD	Mean	SD	t	p
Actual emotional support	4.67	1.24	5.11	1.29	1.37	0.17
Ideal emotional support	5.11	1.24	5.37	1.19	0.88	0.38
Actual practical support	3.09	1.20	3.73	1.09	1.87	0.03*
Ideal practical support	4.03	1.09	4.31	1.15	1.38	0.17

* **p< 0.05**

Table 3.11: Significant Others Scale: Descriptive statistics for actual and ideal support scores and independent samples t-test statistics.

	Depressed n = 28		Non-depressed n = 35			
	Median	Range	Median	Range	z	p
No. of roles identified	5	2 to 6	6	2 to 6	-1.33	0.18
Emotional discrepancy score	0.33	0 to 2	0.25	0 to 1.1	-0.98	0.33
Practical discrepancy score	0.67	0 to 2.0	0.5	0 to 1.6	-1.79	0.07
Total discrepancy score	1.33	0 to 3.0	0.63	0 to 2.7	-2.19	0.03*

* **p < 0.05**

Table 3.12: Significant Others Scale: Descriptive statistics for discrepancy scores and Mann-Whitney independent samples test statistics

Kolmogorov-Smirnov and Shapiro-Wilk analysis was carried out on each data set to examine normality of distribution (Appendix 11). The distribution of scores on number of significant others ("roles") identified, discrepancy between ideal and actual emotional support and the distribution of total discrepancy scores all differed significantly from normal. Outliers were identified for "roles", actual practical support, ideal practical support, and the emotional support discrepancy score. After excluding outliers, neither actual practical support nor ideal practical support differed significantly from a normal distribution. However, number of roles identified and emotional and total discrepancy scores remained skewed. Analyses were conducted excluding outliers and non-parametric statistics applied where distributions differed significantly from normal.

Since depression grouping is a dichotomous variable and the scores on the various subscales of the SOS are continuous variables point-biserial correlations were conducted for depression grouping and the normally distributed SOS subscales (Table 3.13). A significant relationship was demonstrated between identification of depression at health check and actual practical support as measured by the SOS ($r_{pb} = -.284$; $p < .05$). Results indicate that those individuals identified as depressed report receiving significantly less practical support than their non-depressed age peers. No relationship was found between actual or ideal emotional support, nor ideal practical support and depression.

Correlations

		Depression identified at health check	Actual emotional support	Ideal emotional support	Actual practical support	Ideal practical support
Depression identified a health check	Pearson Correlatio	1.000	-.222	-.173	-.284*	-.205
	Sig. (2-tailed)	.	.093	.194	.031	.123
	N	59	58	58	58	58
Actual emotional suppc	Pearson Correlatio	-.222	1.000	.947**	.786**	.833**
	Sig. (2-tailed)	.093	.	.000	.000	.000
	N	58	58	58	58	58
Ideal emotional suppor	Pearson Correlatio	-.173	.947**	1.000	.712**	.816**
	Sig. (2-tailed)	.194	.000	.	.000	.000
	N	58	58	58	58	58
Actual practical suppor	Pearson Correlatio	-.284*	.786**	.712**	1.000	.846**
	Sig. (2-tailed)	.031	.000	.000	.	.000
	N	58	58	58	58	58
Ideal practical support	Pearson Correlatio	-.205	.833**	.816**	.846**	1.000
	Sig. (2-tailed)	.123	.000	.000	.000	.
	N	58	58	58	58	58

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3.13: Point-biserial correlation results for actual and ideal social support (SOS scores) and depression grouping.

Within the depressed group, Spearman correlation analyses showed that there were significant correlations between GDS-15 score and number of significant others (roles) identified (r_s = - 0.491; p = 0.011; p < 0.05), indicating that individuals identified as depressed at their over 75's health check report having fewer relationships of significance the greater the severity of their depressive symptomatology. Within the non-depressed group no such significant relationship was found (r_s = 0.053; NS). No relationship was found in either the depressed or non-depressed groups between GDS-15 score and emotional, practical or total discrepancy scores. Comparing the depressed and non-depressed groups, the non-depressed group reported significantly higher levels of

practical support ($t(59) = 1.87$; $p = 0.03$; $p < 0.05$ one-tail) and significantly lower discrepancy scores for practical support ($t(60) = 1.76$; $p = 0.04$; $p < 0.05$ one-tail) and total support ($t(60) = 2.39$; $p = 0.01$; $p < 0.05$ one-tail). However, using independent samples Mann-Whitney tests, no significant differences were found between groups for perceived emotional or ideal emotional support nor for discrepancy scores for emotional support. There was no significant difference in the total number of reported roles (significant others) between the two groups.

In summary, the hypothesised difference between depressed and non-depressed groups in levels of reported socioemotional support and the perceived adequacy of that support was not upheld. Differences between groups in practical support, perceived adequacy of that support and a composite measure of perceived adequacy of emotional and practical support proved to be statistically significant.

Hypothesis 2 was rejected.

3.4 Hypothesis 3

It is hypothesised that levels of social integration and sense of community belonging in older adults will be associated with levels of socioemotional support and the perceived adequacy of that support.

Using Spearman' rho non-parametric tests of correlation, neither years resident in present community nor the number of groups regularly attended were found to be significantly related to any measure of perceived social support nor adequacy of support as assessed by the Significant Others Scale. Table 3.14 summarises the relationships demonstrated between other measures of social integration and perceived social support and perceived adequacy of support. The remaining three measures of social integration were all related to the number of significant others (roles) identified by participants, with increased levels of integration related to increased numbers of significant others identified: number of neighbours named by their first name ($r_s = 0.48$; $n = 63$; $p < 0.01$), sense of community belonging score ($r_s = 0.30$; $n = 63$; $p < 0.05$), and number of social support deficits ($r_s = -0.37$; $n = 63$; $p < 0.01$). As one might expect social supports deficits correlated negatively with measures of social support and positively with levels of perceived inadequacy of support. Higher discrepancy scores on the SOS reflect lower perceived adequacy of support.

	No. of named neighbours	Sense of community belonging score	No. of social support deficits
No. of roles identified	.480**	.300*	-.365**
Actual emotional support	.526**	.310*	-.417**
Ideal emotional support	.513**	.213	-.331**
Actual practical support	.385**	.321*	-.491**
Ideal practical support	.409**	.235	-.388**
Emotional support discrepancy score	-.206	-.353**	.426**
Practical support discrepancy score	-.013	-.296*	.272*
Total discrepancy score	-.117	-.402**	.406**

** Correlation is significant at the .01 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Table 3.14: Results of Spearman's rho correlational analysis of relationship between three social integration measures and Significant Others Scale measures of perceived social support and perceived adequacy of social support.

Interestingly the number of neighbours named by their first name was related to levels of both perceived emotional support (r_s = 0.53; n = 63; $p < 0.01$) and ideal emotional support (r_s = 0.513; n = 63; $p < 0.01$) and levels of perceived practical support (r_s = 0.39; n = 63; $p < 0.01$) and ideal practical support (r_s = 0.41; n = 63; $p < 0.01$). Sense of community belonging was however shown to be related only to actual emotional support (r_s = 0.31; n = 63; $p < 0.05$) and practical support (r_s = 0.32; n = 63; $p < 0.05$) and to neither ideal emotional support (r_s = 0.2; n = 63; NS) nor ideal practical support (r_s = 0.26; n = 63; NS). The number of neighbours named was neither shown to be related to perceived adequacy of emotional support (r_s = -.0.21; n = 63; NS) nor practical support (r_s = - 0.01; n = 63; NS). Sense of community belonging was however

shown to be related to perceptions of support adequacy, with greater sense of belonging associated with lower discrepancy scores between ideal and actual levels of support, both emotional (r_s = - 0.35; n = 63; $p < 0.01$) and practical (r_s = - 0.30; n = 63; $p < 0.05$), and of total discrepancy scores derived from these (r_s = - 0.41; n = 63; $p < 0.01$).

In summary, the hypothesised relationship between social integration, sense of community belonging and perceived socioemotional support was supported together with the hypothesised association between sense of community belonging and perceived adequacy of socioemotional support. However social integration as measured by the number of neighbours known by their first name was not found to be associated with perceived adequacy of support.

Hypothesis 3 was accepted.

3.5 Hypothesis 4

It is hypothesised that older people who report high levels of stress (as assessed by number of medical problems and recent life events) will be more likely to be depressed if they report inadequate social support (as assessed by the Significant Others Scale) and low levels of sense of community belonging (as assessed by the Sense of Community Belonging Scale).

An independent samples t-test demonstrated no significant difference between the depressed and non-depressed groups on number of medical problems ($t(60) = 1.63$; $p = .109$; NS)(Table 3.15).

	Depressed	Non-depressed	t	p
No. of medical problems:				
Mean	2.89	2.26	1.63	0.11
S.D.	1.71	1.33		

Table 3.15: Number of medical problems recorded at health check: Descriptive statistics and results of independent samples t-test.

Descriptive statistics relating to recent life events reported by study participants are presented in Table 3.16. Due to the distribution of life events significantly differing from normal, non-parametric independent sample Mann-Whitney tests were conducted to determine whether there was a significant difference between the depressed and non-

depressed groups in terms of life events reported. No significant difference was found for any of the three time intervals recorded nor for the total for the year (Table 3.17).

	Depressed	Non-depressed
Past 3 months:		
Median	0	0
Range	0 to 2	0 to 2
Past 3 to 6 months:		
Median	0	0
Range	0 to 2	0 to 3
Past 6 to 12 months:		
Median	0	0
Range	0 to 3	0 to 3
Total for past 12 months:		
Median	1	1
Range	0 to 5	0 to 4

Table 3.16: Recent life events for study participants: Descriptive statistics.

	Number of threatning life events in past 3 months	Number of threatning life events in past 3 to 6 months	Number of threatning life events in past 6 to 12 months	Threatning Life Events - Total for year
Mann-Whitney U	411.000	407.500	459.500	385.500
Wilcoxon W	1041.000	1037.500	1089.500	1015.500
Z	-1.366	-1.574	-.490	-1.521
Asymp. Sig. (2-tailed)	.172	.115	.624	.128

Table 3.17: Differences between depressed and non-depressed groups on numbers of recent life events: Results of independent samples Mann-Whitney tests.

In order to test for a direct stress deterrent effect of sense of community belonging (SOCB) and/or perceived support adequacy a Spearman's rho correlational analysis was conducted. No significant correlation was found between SOCB and number of medical problems (r_s = -.181; NS) or total life events for the year (r_s = -.245; NS). Neither was a

significant correlation found between perceived adequacy of support and number of medical problems (r_s = .234; NS) or number of life events (r_s = .226; NS). There was therefore no evidence to support a stress deterrent effect.

In order to test for the hypothesised interaction between personal resources (sense of community belonging and "adequate" social support) and potential stressors (life events and medical problems) separate logistic regression analyses were conducted for each stressor with depression status as the dependent variable.

3.6.1 Logistic regression analysis I

The probability of depression identification (GDS-15 score ≥ 5) was modelled by a logistic regression procedure. The independent variables were number of medical problems, sense of community belonging, the interaction between sense of community belonging and medical problems, perceived adequacy of social support, and the interaction between perceived adequacy of support and medical problems.

A test of the full model with all five predictors against a constant-only model was statistically reliable, χ^2 (5, N = 63) = 24.41, p < .001. This model accounted for between 33% and 44.2% of the variance in depression status, with 85.3% of the non-depressed participants and 70.4% of the depressed participants successfully predicted. Overall 78.7% of predictions were accurate. Appendix 12 gives the coefficients, the Wald statistic and associated degrees of freedom and probability values for each of the

predictor variables. This shows that of the proposed predictor variables, only sense of community belonging reliably predicted depression status.

3.6.2 Logistic regression analysis II

The probability of depression identification (GDS-15 score ≥ 5) was again modelled by a logistic regression procedure. The independent variables entered on this occasion were number of life events reported for the past year, sense of community belonging, the interaction between sense of community belonging and life events, perceived adequacy of social support, and the interaction between perceived adequacy of support and life events.

A test of the full model with all five predictors against a constant-only model was statistically reliable, χ^2 (5, N = 63) = 26.70, $p < .001$. This model accounted for between 35% and 46.9% of the variance in depression status, with 85.7% of the non-depressed participants and 63% of the depressed participants successfully predicted. Overall 75.8% of predictions were accurate. Appendix 13 gives the coefficients, the Wald statistic and associated degrees of freedom and probability values for each of the predictor variables. This shows that of the proposed predictor variables, sense of community belonging continued to reliably predict depression status, with those scoring higher on sense of community belonging significantly less likely to be in the depressed group as in the "medical problems model". In the new model incorporating life events the interaction of life events and perceived adequacy of support reliably predicted depression status. Although this might initially be interpreted as supporting the hypothesised buffering effect

of stress by perceived adequacy of support, closer examination of the data revealed that perceived adequacy of support only had an effect in the absence of stress (life events). This suggests that once individuals encountered life events the perception of adequacy of support had no significant influence over their mood, in terms of depression status. Appendix 14 provides an attempt to present this interaction effect visually. No such interactive effect of community belonging was found.

Using an estimate of power based on multiple regression with 5 independent variables it was recognised that the sample size fell below that required to achieve power to demonstrate a moderate effect size at the 0.8 level (n = 91) (Cohen, 1988). It was acknowledged that the smaller sample size (n = 63) increased the chances of a Type II error; rejecting the research hypothesis when it is correct. Post hoc estimates of power were attempted for the logistic regression analyses conducted using the resources available with SPSS. [2]

In summary, no significant main effect between stressors (life events or medical problems) and depressed status was found. Multivariate models for probability of depressed status showed a main effect of sense of community belonging with those with high sense of community belonging scores significantly less likely to be depressed. There was no support for the hypothesised interaction effect of sense of community belonging with either medical problems or life events. Although no significant main effect or

[2] A multivariate ANOVA was conducted employing the same variables as those incorporated within the two regression analyses. Eta squared values and observed power is provided for each of the variables incorporated in the models (Appendix 15)

interaction effect was found for perceived adequacy of support and medical problems a significant interaction effect of perceived adequacy of support and life events was found. Those who experienced few life events and perceived their social support to be more adequate were less likely to be depressed, however this effect of perceived support adequacy was no longer evident in the presence of increased life events. The hypothesised buffering effect of perceived adequacy of support was not supported.

3.7 Examination of responses to open question.

"What makes a place a good place to grow old?"

All study participants (n = 63) responded to the open question and responses were recorded verbatim in list format. In order to assist organisation, quantification and analysis it was determined to code responses into categories. It was acknowledged that this process would inevitably result in the loss of some information. Anonymous responses were read independently by two graduate psychologists blind to the study ("blind raters 1 and 2") and categories developed. Each developed a list (Appendix 16) from which a final list (Table 3.18) was derived by consensus between raters and the main researcher. Following a process described by Bialor, Musial, Rojas and Fagan (1999), blind raters 1 and 2 and the researcher independently categorised each response into one or more of the of the categories. All raters agreed on the categorisation of 40 (63.5%) of the 63 responses. Of the remaining 23 responses, when 2 of the 3 raters agreed on the categorisation of a response, this was taken as the final category for that response. When all three raters disagreed a third blind rater was consulted and responses were categorised by consensus. There were 20 responses in the former category and 3 in the latter. As a result of this process all of the responses were classified into one of eight categories. Descriptive statistics for categorisation of responses are presented in Table 3.18. The most frequently mentioned category was "amenities" (57.1%), which included a wide range of items such as transport, shops, post office and public telephone. "Social contacts", which included "good neighbours", "good friends" and "family", was

mentioned by 42.9% of the sample. " Community spirit", which included "friendly place", "where you feel you belong", and "it feels like a community", was mentioned by 41.3% of the sample. When responses were examined, 69.8% (n = 44) of the sample mentioned either social contacts or community spirit as key ingredients in "a good place to grow old".

Category	Number of participants (% of sample)
Social contacts	27 (42.9%)
Activities	14 (22.2%)
Amenities	36 (57.1%)
Physical environment	24 (41.3%)
Safety	19 (30.2%)
Community spirit	26 (41.3%)
Health and social care provision	25 (39.7%)
Place of worship nearby	5 (7.9%)

Table 3.18: Numbers of participants who mentioned particular categories as key ingredients in a good place to grow old.

4. DISCUSSION

4.1 Overview

The relationship of social integration and sense of community belonging to late life depression was investigated in a cross-sectional study of community-dwelling older adults. Depressed and non-depressed groups were well-matched on demographic characteristics including age, living circumstances, education and relative deprivation category. By means of a semi-structured interview together with measures of psychological distress, social integration, and social support, the study attempted to answer a number of specific research questions, namely:

(1) Does late-life depression reflect

i) a lack of sense of belonging, feelings of loneliness and poor social integration?

ii) a lack of socioemotional support and perceptions of support inadequacy?

(2) Are social integration and feelings of belonging associated with socioemotional support and perceptions of support adequacy in late life?

(3) Is there a stress-buffering effect of perceived support adequacy and sense of belonging?

Results of the study are discussed in this section comparing findings with those previously reported in the literature. Methodological limitations of the study are highlighted and implications of the results for clinical psychology discussed. Finally, conclusions are drawn and directions for future research identified.

4.2 Discussion of research findings

4.2.1 Hypothesis 1

Those identified as depressed at their over-75's health check will report a lower sense of community belonging, greater feelings of loneliness and display lower levels of social integration than their non-depressed age-peers.

The current study's support of the hypothesis in relation to sense of community belonging confirmed earlier research findings with younger adults (Hagerty and Williams, 1999) and with a very small sample of elderly nuns (Hagerty, personal communication). McMillan and Chavis (1986) demonstrated the same relationship with depressive symptoms and "sense of community" in a sample whose ages ranged from 18 to 90. The current sample, though small is somewhat more representative of older people than a select group of elderly nuns or a sample with such a diverse age range.

The support of the hypothesis in relation to feelings of loneliness and late-life depression reflects earlier findings with older adults (Prince et al., 1997) in which frequent loneliness was one of the strongest cross-sectional associations with pervasive depression. The current results also confirmed Prince et al.'s (1997) findings that it was the accumulation of social support deficits rather than individual deficits, such as living alone, which was associated with loneliness. Green et al.'s (1992) longitudinal study identified loneliness in older people as an independent risk factor for depression and although associated with living alone not synonymous with it. Newbern and Krowchuck (1994) asserted that feelings of disconnection (lack of a sense of belonging) were a consequence of loneliness.

Cross sectional findings cannot inform about causal direction – the current study can only confirm an association between the two constructs in this sample.

The non-depressed group in the current study regularly attended more local groups as in Hagerty et al.'s (1996) work with younger adults and in the Gospel Oak Project with older adults (Prince et al., 1998) and knew more of their neighbours by their first name. Both attending groups and knowing neighbours may imply a degree of active engagement by the non-depressed group in their local community and its importance in relation to late life depression. Traditional behavioural programmes in clinical psychology (Lewinsohn, Munoz, Youngren and Zeiss, 1978) and current national and international policies of active and successful ageing (CMO, 2002; WHO, 2002) highlight similar principles.

Knowing an individual by their first name, particularly in an older adult cohort, may reflect having had regular face-to-face contact. Glynn (1981) found that the number of neighbours identified by their first name was a strong predictor of sense of community. In keeping with this finding the current study supported a clear relationship between sense of community belonging and the number of neighbours known by their first name. This may suggest a common underlying factor or that knowing neighbours is a contributory factor to a sense of belonging.

Neighbours have been highlighted in the literature as promoters of self-esteem (Cohen and Wills, 1985) and as providers of a sense of "mutual aid", knowing help would be there if needed (Unger and Wandersman, 1985). The confidence enhanced by

heightened self-esteem and the "secure base" provided by a sense of mutual aid may begin to capture the complexity of the psychological construct measured by "sense of community belonging". Enhanced beliefs about self-worth reflected by a greater sense of belonging may facilitate a willingness and/or ability to make social contact and access the support of neighbours as proposed by Lin et al (1999). The lack of a similar relationship between sense of community belonging and number of groups regularly attended may simply have reflected limitations in mobility. Since no measure of disability was included in the current study no conclusions can be drawn on this.

Although attendance at groups was intended as a measure of social integration it may in fact provide a measure of behavioural activation (Lewinsohn, Munoz, Youngren and Zeiss, 1978) with groups simply representing examples of "pleasant events". Attending an art class may provide positive reinforcement but an individual could attend without speaking to anyone. Groups may provide activity in a social context but may not necessarily entail social contact.

Although depressed participants reported more social support deficits as hypothesised, the major difference related to statements concerning friends and neighbours rather than family supporting the assertion that the social support function of family and friends may differ for older adults (Ishii-Kuntz,1990; Rainey et al., 1992). While older people typically receive practical support from relatives, friends are valued for the companionship and emotional support they provide (Lee, 1985). Interactions with friends have previously been found to predict wellbeing in older adults better than contact

with relations (Bowling, 1994). Intimacy in late-life entails a valued role, that of confidante – an esteem-enhancing role and a source of resilience throughout life (Brown and Harris, 1978; Bould et al., 1989; Wallsten, 1999).

Although Glynn (1981) found the view that a car was necessary to get around in a community strongly predicted community satisfaction in younger adults, in the older cohort of the current study issues of poor mobility and increasing frailty may have impacted on responses to this item. The lack of measurement of physical ability precludes any clear conclusion on this.

If stability of residence is reflected by the number of years lived in a community (Schneider, 1986) then this bore no significance in relation to depression in the current study. This contrasts with the Mini-Finland study with younger adults (Lehtininen et al., 1991) and Wenger's (1995) comparison of older adults living in Liverpool and Wales. Wenger highlighted the importance of length of residence, described in the study as "community stability", and related this to support network typology, levels of informal support and depression. The current study did not include measurement of network typology precluding further comparisons with Wenger's (1995) study.

In an attempt to determine statistically how well sense of community belonging, loneliness and social integration predict depression status the impact of "sense of community belonging" overwhelmed the other variables. The loss of predictive value of both loneliness and named neighbours is perhaps unsurprising bearing in mind the

relationship already determined with sense of community belonging. The four-question measure of community belonging may be "tapping" into an underlying concept that is similar to that measured by these other measures.

The small rural sample size precluded meaningful analysis of the main effect of community on sense of community belonging and loneliness. This is an area of particular interest in the context of the impetus for the study - heightened rates of depression in a particular community (a "new town").

The apparent difference between the two communities in levels of sense of community belonging is of note and merits further investigation with larger sample sizes. Clear differences were found between depressed and non-depressed groups in sense of community belonging in both communities but the mean scores of the rural participants were greater than those living in the new town regardless of depression category. This interesting trend may reflect similar community differences discussed in Kirby's (2000) Dublin study. Kirby suggested that some underlying factor, termed "cultural differences", may be reflected in higher levels of social integration and lower levels of depression in some communities. Close neighbourly contact was described by Kirby as "part of the Irish culture". Sadly, no measure of sense of belonging was included in the Dublin study. In the current study the predictive effect of contact with neighbours (implied by "named neighbours") was overwhelmed by sense of community belonging. The current study suggests a sense of belonging may be a key psychological factor facilitating social

contact. Larger scale longitudinal study would be required to clarify temporality or causality.

4.2.2 Hypothesis 2

Older adults identified as depressed at their over 75's health check will report less socioemotional support and will report their socioemotional support to be less adequate than their non-depressed age peers.

Lam and Power's (1991) examination of the pattern and importance of various aspects of social support and their relationship to depression older adults provides a useful comparison for the current study. In their report they comment on their study sample's under-representation of people over 75 years of age and that their "depressed" participants were predominantly "only mildly depressed". All participants in the current study were over 75 and nearly half of the depressed participants scored at or above a level determined to represent severe depressive symptomatology (Osborne et al., 2002).

The current study supported a relationship between practical support and depression rather than the hypothesised relationship with emotional support. This did not confirm Lam and Power's finding that emotional and practical support were related to depression to the same degree. The perception of support and support adequacy have been highlighted in the literature as more pertinent to late life depression than measures of

support network (Wallsten et al., 1999). The lack of support for the hypothesised difference in perceived adequacy of socioemotional support between depressed and non-depressed groups again differed from Lam and Power (1991) who found groups to differ in levels of both emotional and practical support adequacy. The current study again stressed the importance of practical support and confirmed the importance of a composite measure of support for this oldest age group.

It may be that practical support, as suggested by Lam and Power (1991) in the oldest-old is generally protective against depression. The lack of support for the hypothesised difference between groups in socioemotional support and perceived adequacy of that support however runs contrary to many research findings emphasising the crucial role of emotional support in older people (Bould et al., 1989) as well as younger people (Brown and Harris, 1978). The importance of a confiding relationship, for example, has been supported by numerous studies (eg. Murphy, 1982; Kennedy et al., 1989; Evans and Katona, 1993; Lang and Carstensen, 1994; Schoevers et al., 2000). In a recently published examination of factors associated with depression in the MRC trial of assessment and management of people over 75 in the UK (Osborn et al., 2003) the lack of a confiding relationship was significantly associated with depression.

The difference between current findings and those of Lam and Power (1991) may reflect differences in the study sample characteristics as described earlier. It may be the case that practical support is of greater importance to an older sample and/or a more severely

depressed one. The Significant Others Scale suggests relatives as significant roles to rate. Findings may therefore to at least some extent represent an artefact of the measure used. Family may be more likely to provide practical support than emotional support in the oldest-old (Lee, 1985; Rainey et al., 1992; Bowling, 1994). It would be interesting to use the same measure but for non-kin social contacts alone to further inform this area.

Considerable differences were found between the two studies in terms of satisfaction with current support. In Lam and Power (1991) almost a third of their respondents reported that they had too much support, the equivalent figure in the current study was a tenth of this, only three per cent. The 1991 study reported that around a third of their participants reported less support than their ideal rating; the equivalent figure in the current study was almost ninety per cent. These differences may reflect a greater awareness of support inadequacy as one grows older and acquires more knowledge and awareness (Antonucci and Akiyama, 1995) and/or there may be greater potential for mismatch between actual and needed support as practical support needs increase with age. The current study could not assess actual support needs. The higher proportion of severely depressed individuals in the current study may also have biased perceptions of support adequacy, through negative cognitive bias (Beck et al, 1979). However in a recent study with older adults Kahn et al (2003) report that although negative affectivity may bias an individual's report of social support and wellbeing, the bias is not strong enough to jeopardise the significant relationship between social support and wellbeing.

4.2.3 Hypothesis 3

It is hypothesised that levels of social integration and sense of community belonging in older adults will be associated with levels of socioemotional support and the perceived adequacy of that support.

Although the hypothesis was supported in relation to certain measures of social integration (number of named neighbours and number of social support deficits), it was not with others (length of residence in the community and number of groups regularly attended). The more neighbours the older people in the study knew by first name the more support they got and the more they wanted. The importance of neighbours has been highlighted in terms of sociability and socioemotional support (Unger and Wandersman, 1985). The current study suggests their importance also for the provision of practical support in this oldest-old sample. This is an important finding in the context of the current study's earlier findings of the importance of both measures in terms of late-life depression. The inclusion of named neighbours in the current study as a measure of active social engagement within a local community appears to have been supported by its relationship with both practical and emotional support. Although the Significant Others Scale does not inform about reciprocity within support relationships it does provide insight into social contact since, by implication, receipt of social support must entail direct social contact.

The importance of social contact in terms of late life depression which is supported by the current study sharply contrasts with disengagement theory (Cummings and Henry, 1961). The expectation of aid from those living nearby may in fact be reflecting a process of

selective optimisation and compensation (Baltes and Baltes, 1980; Baltes, 1993). The older adult selects their neighbours as meaningful resources upon whom to focus their energies, optimises the use of those resources (their ideal rating on the SOS) and in so doing compensates for other lost or declining resources (physical, social or emotional).

Since length of years resident was not found to differentiate depressed and non-depressed groups it is of interest to note its lack of association also with socioemotional support. Current study findings suggest that it not as important how long an individual older adult lives in an area but how that time is spent. The pertinence of social relationships highlighted by Vaillant and Mukamal (2001) to successful ageing is supported rather than a simple measure of "community stability" (Schneider, 1986).

The fact that the number of groups regularly attended was not related to socioemotional support may simply reflect its assessment of social activity. Its significance in relation to late-life depression may lie in terms of behavioural activation and the reinforcement it provides (Lewinsohn et al, 1978). As described earlier, a group may act as a social event, not as a social support.

The relationship of sense of community belonging to both socioemotional support as hypothesised and to practical support is of real interest. However, no conclusions can be drawn relating to causal connections from the cross sectional design employed nor is it possible to determine whether there is simply a common factor underlying two associated

factors. However it is clear that rather than the receipt of support undermining a sense of belonging it may actually enhance it. Similarly sense of belonging does not appear to inhibit help-seeking behaviour, it may in fact promote it and thereby facilitate access to appropriate support. Further research is required with a larger sample and a longitudinal design to inform this area.

4.2.4 Hypothesis 4

It is hypothesised that older people who report high levels of stress (as assessed by number of medical problems and recent life events) will be more likely to be depressed if they report inadequate social support and low levels of sense of community belonging.

The lack of support for the research hypothesis raises interesting questions. Despite a literature generally supporting an association between physical health and depression in older adults (eg. Walker and Katona, 1997), the study groups did not differ in the number of medical problems recorded at their over-75's health check. Some theorists have suggested that older age is characterised by an acceptance of life events through a process of adaptation (Erikson, 1950). The lack of a direct main effect of life events in the current study may support such a view. Certainly the study supported research which suggests that the number of life events reported in late-life is low, though whether this reflects a difference of effects of events (Orrel and Davies, 1994), greater resilience (McCrae and Costa, 1988) or a more stoical attitude (Neugarten, 1970) remains unclear.

Neither life events nor medical problems are simple constructs to examine. The complex nature of psychosocial transitions implicit in most life events has been highlighted

(Sugarman, 2001). Ill health too is far more complex than a number of medical problems, with numerous associated factors which may contribute to heightened risk of depression (Bruce, 2002) – changes in health (Phifer and Murrell, 1986), functional impairment/disability (Forsell et al., 1994; Zeiss et al., 1996), and subjective appraisal (Beekman et al., 1995) to name but a few. All these issues present challenges of appropriate and adequate assessment to any research study as they have to the current one.

The fact that groups did not differ on measures intended as measures of stress may simply have reflected the choice of inappropriate measures. However, it may also have reflected a resilience to stress in some study participants as hypothesised. Depression may also have reflected a lack of moderating resources to facilitate successful coping (Pearlin and Skaff, 1995).

The lack of a negative relationship between either of the proposed resources (sense of community belonging or perceived support adequacy) and either of the proposed stressors suggested no stress deterrent effect. Although there may possibly have been an effect of event resource match (Murrell et al., 1991), no test was made for this in the current study. The particular impact on some study participants of a specific "off-time" event (Rook et al., 1989), the loss of a child, was notable to the researcher. Limited numbers rendered further analysis of such "impressions" meaningless.

The positive effect of sense of community belonging remained evident in the context of stress, supporting a direct effect model (Cohen and Wills, 1985). The benefit to older adults of a sense of belonging appears to be independent of either medical problems or life events. This direct effect would also imply that the absence or loss of such a sense of belonging would itself act as a stressor. The loss of benefit of perceived support adequacy in the face of life events implies neither a direct effect nor a buffering effect.

The lack of evidence for a buffering effect of social support adequacy is inconsistent with reports of buffering effects for social support in large cross-sectional (Penninx et al., 1996) and longitudinal (Phifer and Murrel, 1986) community-based studies. Such a finding does not imply that the perception of support adequacy is unimportant. Although the psychological health benefit of perceived support adequacy may wane under stress, its role in the facilitation of sense of belonging and a view of self-worth in more peaceful times may be crucial and requires closer examination. Links between appraisal of social support and self-esteem are of particular relevance here – to be supported may provide a personal meaning - "I am valued" and thereby "I am worthy of value".

Seeking out and accepting support may represent an example of an individual strategy for optimal ageing within the context of maintaining a continuing view of self and identity (Atchley, 1989). Such a view is in line with a learned dependency model (Baltes, 1996) suggesting that an individual chooses to ignore independence in favour of the benefits of dependence. As such it represents an adaptive coping style where reduced capacity is compensated for by deliberate strategies of optimisation and selection (Baltes and Baltes,

1980). The current study highlights the potential role of social support in promoting resilience in advance of stress. Sense of belonging may represent a continuing psychological resilience throughout the stress process (Pearlin, 1999).

4.2.5 Open question

"What makes a place a good place to grow old?"

The use of the open question was not intended to be specific to any one research hypothesis but to provide the research participants with an opportunity to express their personal viewpoint on what they as older people considered important. It was felt that the research study would benefit from this perspective and findings could be considered in this context.

Despite a potential bias in the wording of the question towards physical and environmental features, social factors were considered of crucial significance by over seventy per cent of the sample. As participants grow old they report that having family and friends nearby and a "friendly atmosphere" are particularly important factors for them. The current research findings can be viewed in light of these responses. In the context of the heightened salience of local social contact reported, the value of both a sense of community belonging and a perception of social support adequacy to older adults' mental health is hardly surprising. The important questions raised for clinical psychology relate to the individual older adult's perception of self worth in this context (Sugarman, 2001; James, 2003).

4.3 Methodological limitations

4.3.1 Design

The cross sectional design of the current study leaves temporal relations unclear. A characteristic found to be associated with depression may have predated (or caused) it, or it may also be its consequence. As pointed out in a recent cross-sectional study of support networks among community dwelling older people in urban Ireland (Kirby et al., 2000), a cross-sectional study cannot identify whether diminished social integration or, as in our case, diminished sense of belonging, is a cause or effect of depressive disorder. Conclusions cannot be drawn either in relation to the prognostic value of any particular factor for the course of depression once depression is present. It has further been suggested that cross-sectional design may over-represent chronic depression (Schoevers et al., 2000).

In an attempt to clearly differentiate groups the current study did not select a cut-point on the GDS-15 referring to those above as "depressed" and those below as "non-depressed". Instead the recommended cut-point for identification of depression at the over-75's health checks (5/6) was chosen as the lowest permissible score for inclusion in the depressed group and a much lower cut point (2/3) as the highest permissible score for inclusion in the non-depressed group. This choice precluded the use of more powerful forms of analysis, primarily multiple regression since the GDS-15 did not provide a continuous scale. Interestingly a recent report of the MRC Trial of Assessment and Management of Older people in the Community (Osborn et al., 2003) reanalysed data

having previously used a dichotomous threshold for the GDS-15. Subsequent analysis using the GDS-15 as a continuous variable confirmed that the same variables were associated with the GDS-15 in both models suggesting that the associations were not just a product of the choice of GDS-15 threshold.

4.3.2 Sampling and sample size

The origins of the current study lay in the discovery of heightened rates of depression through the over-75's health check. Despite the advantages of sampling from a community-dwelling older adult population only those who accepted the offer of their health check were offered the option to participate in the study, potentially biasing results in favour of service users. Such sampling was preferable to studies of primary care service attenders which may result in over-representation of physical illness, as highlighted by Evans and Katona (1993).

Sample size was limited by numbers identified through the health check process and the good will of district nurses involved since they were the first point of contact and information regarding the study. Lower rates of depression identified in the rural community inevitably led to fewer referrals to the study and resulted in a very limited rural sample size, which precluded any meaningful analysis of data relating specifically to the rural community.

4.3.3 Representativeness of sample

Limited conclusions can be drawn from single practice samples. It cannot be assumed, for example, that the new town practice findings are representative of the whole Glenrothes older adult population. This study can however be viewed as a starting point to identify areas for further research development. In relation to new town older adult populations there is a need for wider study of this particular new town and other new town older adult populations.

4.3.4 Statistical power

A minimum of ninety-one participants were calculated as being required for the study in order to achieve statistical power to demonstrate moderate effect sizes (ES) at the 0.8 level (Cohen, 1988). This calculation was based on a multiple regression analysis with five independent variables. As has been highlighted throughout the research report the study failed to achieve the sample size originally identified as required. Attempts have been made to estimate power post-hoc and these have been reported throughout. The frequent use of non-parametric analysis also reduced the power of the study and though attempts were made where appropriate to transform data to enable parametric analysis this was not always possible or appropriate.

4.3.5 Measures

The literature is replete with multiple measures of community social dynamics which have been developed without specific theoretical or empirical explanations for how these measures differ or relate (Parker, Lichtenstein, Schultz et al., 2001). Attempt has been made throughout this study to provide the rationale for inclusion of measures and to discuss their possible interrelations. Although all measures were selected from reputable large-scale studies primarily with older adults, there is a lack of provision in the literature of reliability and validity statistics for some of the measures. Of particular note here is the four-question Sense of Community Belonging Scale (Moore, 1999). Attempt was made by personal communication to access the more reliable Sense of Belonging Instrument (Hagerty and Patusky, 1995) – however access was not granted for this. Personal contact with the Dr Jeanne Moore, author of the four-question scale revealed that no further research had been completed to develop reliability and validity statistics for the measure. This study set out to be an initial exploration of the construct of sense of community belonging in relation to depression (as measured by the well-validated GDS-15) and alongside other measures of social integration identified from large-scale well-respected older adult studies and a well validated and reliable social support measure (the Significant Others Scale). Clearly the research and clinical utility of the Sense of Community Belonging Scale will depend on further study to determine its reliability and validity.

All measures were administered orally to all study participants thus no individual participants were favoured or handicapped by presentation style. Researcher bias in intonation of questioning and non-verbal communication are clear possibilities; every attempt was made to maintain consistency across the study. Clinician administration of the GDS-15 has been recommended by its authors. The Significant Others Scale (Power et al., 1988) was designed to be used either as a self-administered instrument or in interview format as was the Short Anxiety Screening Test (Sinoff et al., 1999). The Threatening Life Events Scale (Brugha et al., 1985) was designed for incorporation into a semi-structured interview as was the Social Support Deficits index (James and Davies, 1987). Single item "measures" had all previously been reported as part of semi-structured interviews used in large-scale older adult studies.

Although a rather crude measure of physical health was incorporated (number of medical problems recorded at latest health check) the literature highlights the importance of disability (Bruce, 2002) and chronicity of health problems (Murphy, 1982) in relation to late-life depression and no measure of these was conducted.

Some researchers have criticised the use of life events inventories such as that used in the current study favouring an individualised or contextualised rating of life events collected by means of a semi-structured interview (Brown and Harris, 1978). Such interview procedures however require specialised training and would also be lengthy and tiring for study participants who were already completing a number of other measures.

In relation to depression it was impossible in the current study to differentiate chronic from temporary depressive conditions without more thorough examination of patient records (Schoevers et al.,2000). Neither was there any measure of previous psychiatric history. Such measurement was recommended by Forsell et al. (2000) pointing out that depression, anxiety and psychotic symptoms in the oldest old may be linked to a lifetime psychological vulnerability. Such assessment would however have relied on patient self-report and it is suggested that "many patients with current psychiatric disorders in late life have a poor memory of previous episodes" (Blazer, 1994). No attention was given to prior subsyndromal depression which was seen by Hays et al. (1994) to increase vulnerability to excess psychological distress when combined with a stressful life event.

Questioning over history of social support might have proved useful in determining lifelong patterns. In Murphy's (1982) discussion of the capacity for intimacy this is captured by the phrase "better to have loved and lost than never to have loved at all". Personality and its role in predisposition to social isolation, loneliness and depression has been proposed by Green et al. (1992) – no assessment of personality was incorporated in the current study.

4.4 Clinical implications of findings

The current study findings highlight the salience of interpersonal relations and a sense of belonging to the mental health of older adults. Participants themselves reported a heightened significance of social contact as they age. The importance here of a full psychological formulation of individual difficulties within an interpersonal context is clear.

If sense of belonging is of such mental health value there is a clear need for clinical psychology to explore which factors promote it and to encourage these through targeted interventions. Close links with Primary Care colleagues and other statutory and voluntary agencies will be crucial to the identification and appropriate assessment of individuals at heightened risk (BPS, 2002).

Whereas the important role of social support is clearly confirmed by the current research findings, sense of belonging concerns the perception of self as integrated within an interpersonal system. Such a sense of integration implies a valued role (Champion and Power, 1995) or "valued fit" in that system (Hagerty et al., 1996), suggesting clear links with self-esteem (Cohen and Wills, 1985). Well-researched effective psychological interventions to promote self-esteem are of particular relevance here. A therapeutic approach such as Interpersonal Psychotherapy (IPT) would seem particularly appropriate for high-risk individuals, with its focus on the relationship between mood and interpersonal events (Klerman and Weissman, 1994).

The perception of support adequacy has been shown in the current study to be of relevance to late-life depression. The subjective appraisal of moderating resources and its links with behaviour, emotion and physiology are clearly an arena for constructive and collaborative therapeutic work with distressed individuals of all ages (Beck et al., 1979; Laidlaw et al., 2003) and for which there is a clear evidence base (Chambless, Sanderson, Shoham et al., 1996). It is possible to incorporate a selective optimisation and compensation model within such a therapeutic framework (Baltes and Baltes, 1990; Baltes, 1993). Appropriate moderating resources such as practical support can be selected and optimised by ensuring every opportunity for their use is taken, thereby compensating for a decline in other resources. Such a process of older adults purposefully addressing transitions presents a view of ageing as an active process rather than one faced by "passive victims" (Pearlin and Skaff, 1995). Clinical psychology has a clear role to play in encouraging such an active process for those who are struggling with it and to promote factors which may facilitate it in high risk individuals. Further research both in the community and in a clinical setting is required to determine how best to facilitate and promote a sense of belonging and the interpersonal integration it represents in vulnerable older adults and in those already depressed.

4.5 Conclusion

The identification of heightened rates of late-life depression and clinical concern regarding its possible implications in terms of quality of life, functional impairment, morbidity and mortality provided the initial impetus for the current study.

The crucial importance of social contact and active engagement to mental health in late-life has been highlighted by the study findings but within the context also of an acceptance of practical help. Sense of belonging was found to be associated with socioemotional support and its perceived adequacy but also with equivalent measures of practical support. Practical support was of more relevance to depression status than emotional support. These findings do not confirm a preference for emotional support in the oldest-old as socioemotional selectivity theory would suggest (Carstensen, 1991) but instead that it is the combined influence of both types of support that has positive mental health value. An enhanced view of self-worth suggested as implicit in a sense of belonging (Baumeister and Leary, 1995; Hagerty and Williams, 1999) may facilitate ease of access to such contact and support which then further reinforces a personal sense of value and control within "dependency" (Horgas, Wahl and Baltes, 1996), rather than feelings of helplessness (Seligman, 1975). The persistent benefits of sense of belonging in the current study both outwith and within the context of stress suggest a resilience value worthy of serious examination.

In terms of Pearlin's (1999) stress process model, sense of belonging appears to be a potent psychological moderating resource in late-life, encompassing esteem support (Cohen and Wills, 1985), the security gained through a sense of mutual aid (Unger and Wandersman, 1985) and a sense of self-worth through a valued role (Champion and Power, 1995) and valued fit (Hagerty and Williams, 1999). As such it represents a psychological factor which clearly merits longitudinal study to verify and clarify its protective function in terms of mental health in late-life. Further research will clarify the potential clinical value of promotion of such a psychological resource through active engagement (Lewinsohn et al., 1978) and a process of selection and optimisation of resources to compensate for the loss of others (physical, social or emotional) (Baltes and Baltes, 1990). A psychoeducational approach targeting the positively framed "sense of belonging" rather than the negative construct of "loneliness" may enable older adults to develop their own individual strategies for optimal ageing whilst maintaining and promoting self-esteem (Atchley, 1989; James, 2003).

The current study has highlighted a number of opportunities for further research which have already been discussed. As this was the first study to use the four-item Sense of Community Belonging scale with older adults, replication would clearly be of value, together with a careful examination of the scale's reliability and validity. A simple four question scale appears to have "tapped" into a number of underlying concepts that are similar to those measured by neighbourhood participation, non-kin support, and perceived support adequacy so that when these measures are entered into a regression together the impact of sense of community belonging overwhelms the other variables.

Depressed older adults were clearly found to have lower scores on the scale but the complexity of the psychological construct of "belongingness" measured by it remains a matter for detailed examination. The use of the scale alongside other well-validated psychological instruments would be an important next step.

Older people themselves reported the salience of social contact within their neighbourhood. This very salience may provide the key to the importance of sense of community belonging to the psychological wellbeing of this sample and perhaps for the oldest old generally. The importance of active social engagement to the promotion of such psychological wellbeing is confirmed by the study findings, which in turn support psychological theories of successful ageing (Rowe and Kahn, 1998) and the parallel national and international policies of active ageing.

In terms of the original starting point for the study it may be that a new town community does not promote a sense of belonging in its older residents as much as a rural village. Regular social contact may be more common in smaller communities as suggested by Kirby (2000) but it is the psychological benefit of this contact in the positive view of self in relation to the social community, a sense of belonging, which is of crucial importance to mental health (Baumeister and Leary, 1995). It may well not be the place but one's view of oneself in relation to other people in that place that matters.

In his discussion of psychological sense of community, Glynn (1981) pointed out that the identification of behaviours and attitudes which contribute to such a sense might allow an individual with that knowledge to "actively and with full awareness of what they are doing, develop and/or maintain their sense of community". He could also have added that consideration of this factor may be a crucial aspect for consideration in clinical psychological formulation and intervention.

On an individual basis this area clearly merits further research in terms of determining whether one lives in a "high risk" community and can identify means of actively promoting one's own mental health. On a societal level research findings highlighting "high risk" communities have clear public health implications for resource targeting. Such resource implications also apply to clinical psychology and highlight the importance of an older adult service establishing good primary care links especially in the context of population ageing (BPS, 2002).

If certain communities somehow fail to promote a sense of belonging they may not only be reducing a direct positive effect (a protective factor) but inadvertently also imposing additional stress through the very lack of that positive effect (Cohen and Wills, 1985). There may be no "good place to grow old" only good promoters of a sense of belonging and its inherent sense of self-worth. Clinical psychology has a role to play both for the individual who lacks such a sense and for the communities who fail to promote it.

The current study has highlighted the salience of sense of belonging to the mental health of a sample of the oldest old people living in the community. The potential for such a factor to facilitate successful adaptation and resilience in the face of late life transitions clearly merits further research.

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Appendix 1.

Distribution of scores on the Geriatric Depression Scale (GDS-15) for both Fife audit samples and equivalent proportions for the MRC trial sample.

GDS -15 Score	≥1	≥2	≥3	≥4	≥5	≥6	≥7	≥8	≥9	≥10	≥11	≥12	≥13	≥14
% MRC	73.8	53.8	34.6	21.8	13.1	8.0	4.9	3.1	1.9	1.1	0.6	0.3	0.1	0.1
% G/R	85.7	73.8	52.4	38.1	27.0	17.5	9.6	7.2	4.8	3.2	2.4	0	0	0
% A/M	70.4	48.6	31.7	21.8	11.9	7.0	6.3	4.9	2.8	2.8	0.7	0	0	0

MRC = Medical Research Council Trial of Assessment of Older People in the Community (Osborn et al., 2002)

G/R = Glenrothes North Glen Practice Audit

A/M = Auchtermuchty Audit

Mann-Whitney Test

Ranks

	Type of community	N	Mean Rank	Sum of Ranks
GDS-15 Total Score	New Town	126	155.39	19579.00
	Rural	142	115.96	16467.00
	Total	268		

Test Statistics[a]

	GDS-15 Total Score
Mann-Whitney U	6314.000
Wilcoxon W	16467.000
Z	-4.212
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Type of community

Appendix 2

PATIENT INFORMATION SHEET

"A GOOD PLACE TO GROW OLD?"
A STUDY OF FACTORS THAT MIGHT INFLUENCE DEPRESSION IN PEOPLE OVER 75 LIVING IN FIFE

You are being invited to take part in a research study. Please read the following information carefully before you make your decision. This leaflet explains what this research is about and why you have been asked to take part.

Thank you for taking the time to read this!

What is this study about?

This study is trying to find out what makes it more likely that older people will get depressed and very importantly, what makes it less likely. Most research has been done with younger people and in cities. But this study is interested in people of *your* age group living in new town and rural settings. We hope that our findings will help older people to take action to promote their own well-being and services to identify what resources are needed and where to target them.

Who is carrying out this study?

The study is being carried out by Elspeth Salter, Clinical Psychologist in Training, as part of a Doctorate in Clinical Psychology.

Who is being asked to take part in this study?

Patients in two General Practices in Fife who have completed an Over 75's health check.

Do I have to take part?

No, taking part in this study is entirely voluntary. If you decide not to take part this will not affect your treatment and medical care in any way.

What will be involved if I agree to take part?

If you decide to take part, then you will be contacted by the researcher, Elspeth Salter, to arrange one appointment. The appointment will last about an hour and can be at home, surgery or clinic – whichever is easiest for you. In the first part of the appointment the researcher will ask you some questions about yourself and where you live – this will take about 20 - 25 minutes. The second part of the appointment will take about 40 minutes and will involve completing a few simple questionnaires. You can stop for a break whenever you want.

Will my information be confidential?

Yes. Any information you give will be anonymous and confidential.

What will happen to the results of the research study?

The information collected will be used for writing an academic piece of work and perhaps for publication in a scientific journal. No information about your identity will be included. If you want to obtain reports or published articles of research, then copies can be supplied by the researcher.

What happens next?

You will be contacted within the next two weeks to ask if you still wish to take part in this study.
If you do wish to take part in the study a convenient time will be arranged to meet with you.

If you have any questions or would like any further information please contact:

Elspeth Salter
Clinical Psychologist in Training
Department of Clinical Psychology
Stratheden Hospital
Cupar
Fife
KY15 5RR
01334 652611 ext. 336 or your own District Nurse

Appendix 3

CONSENT FORM

"A Good Place to Grow Old?" A study of factors that might influence depression in people over 75 living in Fife.

Name of Principal Researcher: Elspeth Salter

☐ I have read and understood the patient information sheet for this study.

☐ I understand that participation is voluntary, and that if I decide not to take part in the study this will not affect my current or future treatment in any way, and that I am free to withdraw from the study at any time.

☐ I understand that the information I give will be treated confidentially and reported anonymously.

☐ I understand that sections of my medical notes may be looked at by the principal researcher, where it is relevant to my taking part in research. I give permission for this individual to have access to my records.

☐ I agree to take part in the above study.

Signed: _____

Witnessed by: _____

Designation: _____ **Date:** _____

Appendix 4

Semi-structured Interview

INTRODUCTION:

Thank you very much for agreeing to take part in this study. My name is Elspeth Salter and I am in my final year of doctorate training in Clinical Psychology. As you know the aim of our study is to explore what influences how we feel as we get older. Do you have any questions you would like to ask after reading the information sheet?

Our time together today will be divided in two – first I will be asking you to tell me a bit about yourself and where you live. After that I will ask you to take some time to complete a series of questionnaires. The whole meeting should take about an hour. Everyone taking part in the study will be asked the same questions. It would be very helpful if I could take a note of your answers – is that ok? All your information will, of course, be kept entirely anonymous and confidential.

Please just say if you need a rest at any point or if anything isn't clear.

SOCIODEMOGRAPHICS:

To start with, could I just check your age? _____

And regarding your marital status:

Are you
- Single
- Married
- Partnered
- Separated/ Divorced
- Widowed

What was the highest level of education you achieved?

- Primary School
- High school
- Trade or technical certificate
- College diploma or degree
- University Degree
- Other

Do you live alone? YES/NO

If No, who lives with you?

How many years have you lived in this community? _____

TRANSPORT:

Do you think a car is necessary to get around in this community? YES/NO

Do you drive? YES/NO

SENSE OF BELONGING :

Could you please give the first names of as many of your adult neighbours as you can?

Now, I'm going to read you some statements, one at a time – after each statement please tell me whether you strongly agree, agree, disagree, strongly disagree with it or if you are unsure. 5 points on Likert scale on laminated card so that they can point to response.

Statements:

I have good friends in this area	SA A U D SD
I can be myself in this area	SA A U D SD
I feel part of what's going on in this area	SA A U D SD
I feel at home in this area	SA A U D SD

MEMBERSHIP/PARTICIPATION:

Do you belong to any community groups, churches, organisations or clubs?
If so, list:_____

Do you attend any of these regularly?
If so, list _____

LONELINESS:

Do you feel lonely?
Never/ Hardly Ever/ Occasionally/ A lot/ All the time

HEALTH:

In general, do you consider yourself to be currently healthy or unhealthy?

_____

OPEN QUESTION:
What do you think makes a place a good place to grow old? List responses on separate sheet

Thankyou very much. Now I have 6 questionnaires for you to complete.

Appendix 5

G.D. SCREENING SCALE – SHORT FORM (YESAVAGE)

I D CODE: **DATE:**

Please answer all the questions by circling either 'YES' or 'NO'

1.	Are you basically satisfied with your life?	**YES/NO**
2.	Have you dropped many of your activities and interests?	**YES/NO**
3.	Do you feel that your life is empty?	**YES/NO**
4.	Do you often get bored?	**YES/NO**
5.	Are you in good spirits most of the time?	**YES/NO**
6.	Are you afraid that something bad is going to happen to you?	**YES/NO**
7.	Do you feel happy most of the time?	**YES/NO**
8.	Do you often feel helpless?	**YES/NO**
9.	Do you prefer to say at home rather than going out and doing new things?	**YES/NO**
10.	Do you feel you have more problems with memory than most?	**YES/NO**
11.	Do you think it is wonderful to be alive now?	**YES/NO**
12.	Do you feel pretty worthless the way you are now?	**YES/NO**
13.	Do you feel full of energy?	**YES/NO**
14.	Do you feel that your situation is hopeless?	**YES/NO**
15.	Do you think that most people are better off than you?	**YES/NO**

Appendix 6

SAST

Please tick in the appropriate box for each of the questions below.

Question	Rarely or never	Sometimes	Often	Always	Points
1. Do you feel keyed up, on edge?					
2. Do you feel that something terrible is going to happen?					
3. Are you worrying about your present state?					
4. Do you feel you have control of your life?					
5. Can you relax?					
6. Do you suffer from back pain, neck pain and headache?					
7. Do you sweat a lot or suffer from palpitations					
8. Have you been irritable?					
9. Do you sleep well?					
10. Do you suffer from dizziness or faintness?					

Appendix 7

TLE Scale

Please tick in the appropriate box if you have experienced any of the following events in the last 3 months, 6 months, or a year.

Event	Past 3 months	Past 6 months	Past 12 months
Death of a parent			
Death of spouse or child			
Death of another relative			
Serious illness or an accident affecting a relative			
Marital separation			
Ending of a friendship/relationship			
A serious problem with a close friend, neighbour or relative			
Financial crisis			
Theft or loss of an item of personal value			

Appendix 8

SSD Index

Please tick any statement which applies to you

☐ **I live alone**

☐ **I see a relative less than once a week**

☐ **I have no supportive neighbours**

☐ **I have one or less supportive friends**

☐ **I have experienced upset or bother in a relationship with one of my children**

☐ **I am not satisfied with the support I receive from friends**

Appendix 9

DATE:_____

The Significant Others Scale

Instructions

Listed below are various people who may be important in your life. For each person please circle a number from 1 to 7 to show how well he or she provides the type of help that is listed.
The second part of each question asks you to rate how you would like things to be if they were exactly what you hoped for. As before, please put a circle around one number between 1 and 7 to show what your rating is.

Please note: If there is no such person in your life, please leave that section blank and go on to the next section

Person 1.....	**never**			**some times**			**always**
1 a) Can you trust, talk to frankly and share your feelings with your spouse/partner?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
2 a) Can you lean on and turn to your partner in times of difficulty?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
3 a) Does he or she give you practical help?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
4 a) Can you spend time with him/her socially?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7

Person 2

_____

1 a) Can you trust, talk to frankly and share your feelings with your brother/sister?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
2 a) Can you lean on and turn to your brother/sister in times of difficulty?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
3 a) Does he or she give you practical help?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
4 a) Can you spend time with him/her socially?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7

Appendix 9 (cont)

Person 3.....	**never**			**some times**			**always**
1 a) Can you trust, talk to frankly and share your feelings with your son or daughter?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
2 a) Can you lean on and turn to your son or daughter in times of difficulty?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
3 a) Does he or she give you practical help?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
4 a) Can you spend time with him or her socially?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7

Person 4							
1 a) Can you trust, talk to frankly and share your feelings with your best friend?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
2 a) Can you lean on and turn to your best friend in times of difficulty?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
3 a) Does he or she give you practical help?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
4 a) Can you spend time with him/her socially?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7

Person 5.....	**never**			**some times**			**always**
1 a) Can you trust, talk to frankly and share your feelings with person 5?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
2 a) Can you lean on and turn to person 5 in times of difficulty?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
3 a) Does he or she give you practical help?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7
4 a) Can you spend time with him or her socially?	1	2	3	4	5	6	7
b) What rating would your ideal be?	1	2	3	4	5	6	7

Appendix 9 continued

Person 6 .....

1 a) Can you trust, talk to frankly and share your feelings with Person 6?	1 2 3 4 5 6 7
b) What rating would your ideal be?	1 2 3 4 5 6 7
2 a) Can you lean on and turn to Person 6 in times of difficulty?	1 2 3 4 5 6 7
b) What rating would your ideal be?	1 2 3 4 5 6 7
3 a) Does he or she give you practical help?	1 2 3 4 5 6 7
b) What rating would your ideal be?	1 2 3 4 5 6 7
4 a) Can you spend time with him/her socially?	1 2 3 4 5 6 7
b) What rating would your ideal be?	1 2 3 4 5 6 7

Thank you for taking the time to complete this.

Appendix 10

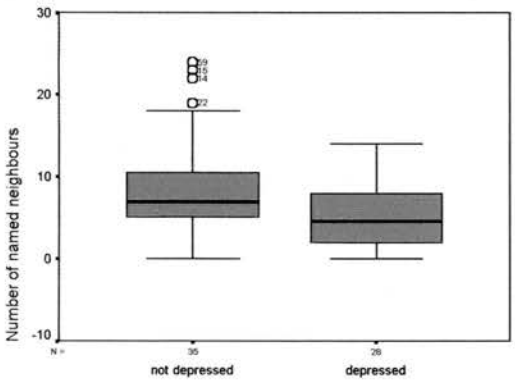
Tests of Normality

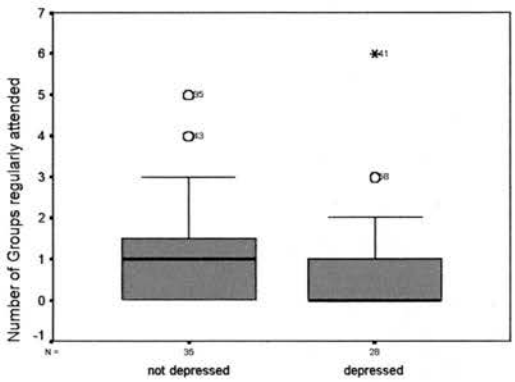
	Depression identifie at health check	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Years in Present Community	not depressed	.195	35	.002	.889	35	.010**
	depressed	.133	28	.200*	.890	28	.010**
Number of named neighbours	not depressed	.201	35	.001	.882	35	.010**
	depressed	.147	28	.127	.922	28	.047
Total Belonging Scor	not depressed	.153	35	.037	.913	35	.013
	depressed	.145	28	.138	.962	28	.440
Number of Groups regularly attended	not depressed	.262	35	.000	.793	35	.010**
	depressed	.386	28	.000	.516	28	.010**
Number of Social Support Deficits	not depressed	.290	35	.000	.848	35	.010**
	depressed	.160	28	.065	.936	28	.105

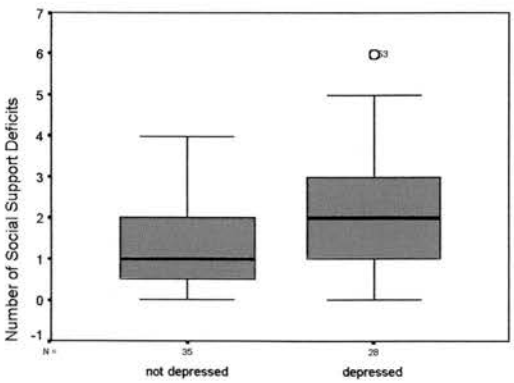
**. This is an upper bound of the true significance.

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction







Appendix 11

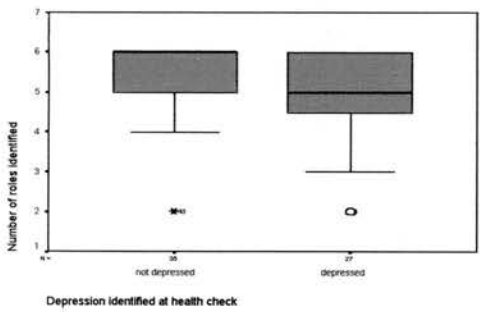
Tests of Normality

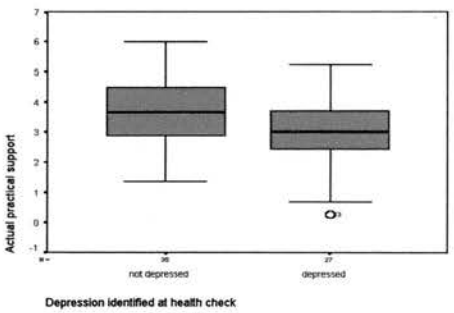
	Depression identified at health	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Number of roles identified	not depressed	.291	35	.000	.735	35	.010**
	depressed	.241	27	.000	.830	27	.010**
Actual emotional support	not depressed	.081	35	.200*	.955	35	.268
	depressed	.081	27	.200*	.985	27	.951
Ideal emotional support	not depressed	.104	35	.200*	.944	35	.100
	depressed	.094	27	.200*	.970	27	.620
Actual practical support	not depressed	.108	35	.200*	.982	35	.834
	depressed	.110	27	.200*	.962	27	.454
Ideal practical support	not depressed	.082	35	.200*	.981	35	.831
	depressed	.079	27	.200*	.982	27	.907
Discrepancy for emotional support	not depressed	.245	35	.000	.832	35	.010**
	depressed	.179	27	.027	.846	27	.010**
Discrepancy for practical support	not depressed	.131	35	.134	.891	35	.010**
	depressed	.136	27	.200*	.943	27	.209
Total discrepancy	not depressed	.160	35	.024	.909	35	.010**
	depressed	.103	27	.200*	.974	27	.702

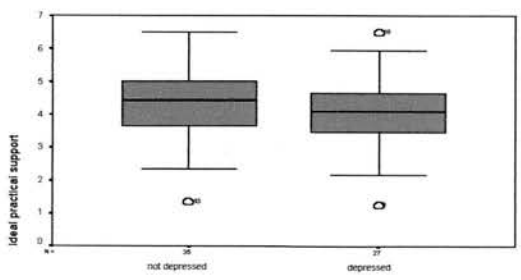
**. This is an upper bound of the true significance.

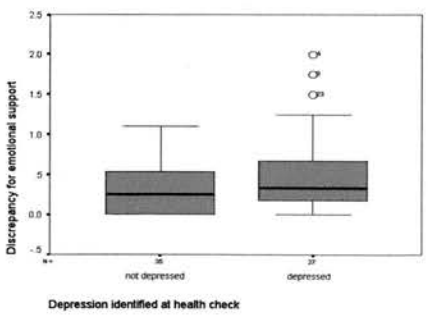
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction









Appendix 12

Logistic regression model for Hypothesis 4 : Medical problems

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	MEDPROBS	-1.923	1.434	1.797	1	.180	.146	.009	2.431
	BELONG	-.820	.322	6.477	1	.011	.441	.234	.828
	BELONG by MEDPROBS	.127	.100	1.605	1	.205	1.135	.933	1.382
	DTOT	-1.350	1.135	1.417	1	.234	.259	.028	2.395
	DTOT by MEDPROBS	.618	.415	2.220	1	.136	1.855	.823	4.180
	Constant	10.224	4.480	5.208	1	.022	27567.145		

a. Variable(s) entered on step 1: MEDPROBS, BELONG, BELONG * MEDPROBS , DTOT, DTOT * MEDPROBS .

MEDPROBS = No. of medical problems recorded at health check
BELONG = Total sense of community belonging score
BELONG by MEDPROBS = interaction between sense of community belonging and medical problems
DTOT = Discrepancy score between ideal and actual social support (perceived adequacy)
DTOT by MEDPROBS = interaction between perceived adequacy of support and medical problems

Appendix 13

Logistic regression model for Hypothesis 4: Life events

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	TLETOT	2.659	2.187	1.479	1	.224	14.287	.197	1037.967
	BELONG	-.429	.209	4.197	1	.040	.651	.432	.982
	BELONG by TLETOT	-.136	.160	.727	1	.394	.872	.638	1.194
	DTOT	1.100	.609	3.266	1	.071	3.005	.911	9.909
	DTOT by TLETOT	-.841	.381	4.878	1	.027	.431	.204	.910
	Constant	3.553	2.641	1.809	1	.179	34.905		

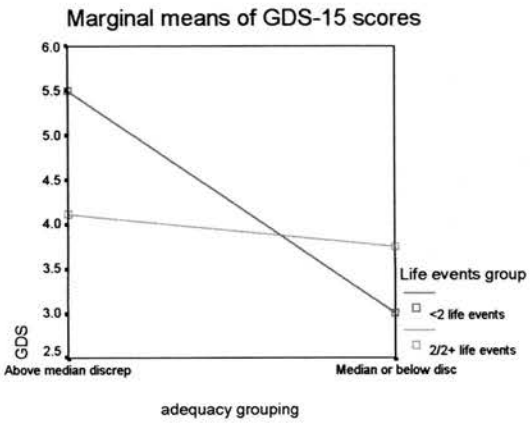
a. Variable(s) entered on step 1: TLETOT, BELONG, BELONG * TLETOT , DTOT, DTOT * TLETOT .

TLETOT = No. of life events recorded for past year
BELONG = Total sense of community belonging score
BELONG by TLETOT = interaction between sense of community belonging and life events
DTOT = Discrepancy score between ideal and actual social support (perceived adequacy)
DTOT by TLETOT = interaction between perceived support adequacy and life events

Appendix 14

Hypothesis 4 :

Estimated marginal means of GDS-15 scores for high and low life events groups and high and low perceived support discrepancy scores



Appendix 15 :

(1) Estimated power for logistic regression model Hypothesis 4 using MANOVA: Medical problems

Dependent Variable	F	P	Eta squared	Observed power
No. of medical problems	2.52	.118	.041	.345
Sense of community belonging	24.66	.000	.295	.998
Perceived support adequacy	5.69	.020	.088	.650

(2) Estimated power for logistic regression model Hypothesis 4 using MANOVA: Life events

Dependent Variable	F	P	Eta squared	Observed power
No. of life events	2.38	.128	.038	.330
Sense of community belonging	25.21	.000	.296	.999
Perceived support adequacy	5.69	.020	.087	.651

Appendix 16:

Original categories (Rater 1) from open question:

1. Family nearby
2. Good provision of amenities
3. Good healthcare provision
4. Range of social activities/clubs
5. Good council/social services provision
6. Aesthetically pleasing
7. Sense of community/friendly community
8. Good public transport
9. Peaceful/safe environment
10. Religious needs met
11. Familiarity of environment

Original categories (Rater 2) from open question:

1. Social contacts/family nearby
2. Activities
3. Local amenities
4. Physical environment
5. Practical assistance
6. Sense of belonging to community
7. Health and social care provision
8. Safe environment